SEQUENCE LISTING

<110> Yang, Annie
      McKeon, Frank

<120> CELL REGULATORY GENES, ENCODED PRODUCTS, AND USES
      RELATED THERETO

<130> HMV-038.01

<140> 09/174,493
<141> 1998-10-15

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<151> 1998-05-29

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<170> PatentIn Ver. 2.0

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cag cat atc tgg gat ttt ctg gaa cag cct ata tgt tca gtt cag ccc    96
Gln His Ile Trp Asp Phe Leu Glu Gln Pro Ile Cys Ser Val Gln Pro
                20                  25                  30

att gac ttg aac ttt gtg gat gaa cca tca gaa gat ggt gcg aca aac   144
Ile Asp Leu Asn Phe Val Asp Glu Pro Ser Glu Asp Gly Ala Thr Asn
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aag att gag att agc atg gac tgt atc cgc atg cag gac tcg gac ctg   192
Lys Ile Glu Ile Ser Met Asp Cys Ile Arg Met Gln Asp Ser Asp Leu
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agt gac ccc atg tgg cca cag tac acg aac ctg ggg ctc ctg aac agc   240
Ser Asp Pro Met Trp Pro Gln Tyr Thr Asn Leu Gly Leu Leu Asn Ser
 65                  70                  75                  80

atg gac cag cag att cag aac ggc tcc tcg tcc acc agt ccc tat aac   288
Met Asp Gln Gln Ile Gln Asn Gly Ser Ser Ser Thr Ser Pro Tyr Asn
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ccc agc tcc acc ttc gat gct ctc tct cca tca ccc gcc atc ccc tcc   384
Pro Ser Ser Thr Phe Asp Ala Leu Ser Pro Ser Pro Ala Ile Pro Ser
            115                 120                 125

aac acc gac tac cca ggc ccg cac agt ttc gac gtg tcc ttc cag cag   432
Asn Thr Asp Tyr Pro Gly Pro His Ser Phe Asp Val Ser Phe Gln Gln
            130                 135                 140

tcg agc acc gcc aag tcg gcc acc tgg acg tat tcc act gaa ctg aag   480
Ser Ser Thr Ala Lys Ser Ala Thr Trp Thr Tyr Ser Thr Glu Leu Lys
145                 150                 155                 160

aaa ctc tac tgc caa att gca aag aca tgc ccc atc cag atc aag gtg   528
Lys Leu Tyr Cys Gln Ile Ala Lys Thr Cys Pro Ile Gln Ile Lys Val
                165                 170                 175

atg acc cca cct cct cag gga gct gtt atc cgc gcc atg cct gtc tac   576
Met Thr Pro Pro Pro Gln Gly Ala Val Ile Arg Ala Met Pro Val Tyr
            180                 185                 190

aaa aaa gct gag cac gtc acg gag gtg gtg aag cgg tgc ccc aac cat   624
Lys Lys Ala Glu His Val Thr Glu Val Val Lys Arg Cys Pro Asn His
            195                 200                 205

gag ctg agc cgt gaa ttc aac gag gga cag att gcc cct cct agt cat   672
Glu Leu Ser Arg Glu Phe Asn Glu Gly Gln Ile Ala Pro Pro Ser His
            210                 215                 220

ttg att cga gta gag ggg aac agc cat gcc cag tat gta gaa gat ccc   720
Leu Ile Arg Val Glu Gly Asn Ser His Ala Gln Tyr Val Glu Asp Pro
225                 230                 235                 240

atc aca gga aga cag agt gtg ctg gta cct tat gag cca ccc cag gtt   768
Ile Thr Gly Arg Gln Ser Val Leu Val Pro Tyr Glu Pro Pro Gln Val
                245                 250                 255

ggc act gaa ttc acg aca gtc ttg tac aat ttc atg tgt aac agc agt   816
Gly Thr Glu Phe Thr Thr Val Leu Tyr Asn Phe Met Cys Asn Ser Ser
            260                 265                 270

tgt gtt gga ggg atg aac cgc cgt cca att tta atc att gtt act ctg   864
Cys Val Gly Gly Met Asn Arg Arg Pro Ile Leu Ile Ile Val Thr Leu
            275                 280                 285

gaa acc aga gat ggg caa gtc ctg ggc cga cgc tgc ttt gag gcc cgg   912
Glu Thr Arg Asp Gly Gln Val Leu Gly Arg Arg Cys Phe Glu Ala Arg
            290                 295                 300

atc tgt gct tgc cca gga aga gac agg aag gcg gat gaa gat agc atc   960
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aga aag cag caa gtt tcg gac agt aca aag aac ggt gat ggt acg aag   1008
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cgc ccg ttt cgt cag aac aca cat ggt atc cag atg aca tcc atc aag   1056
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atg cag tac ctt cct cag cac aca att gaa acg tac agg caa cag caa   1200
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             405   410   415

cca tct tca tat ggt aac agc tcc cca cct ctg aac aaa atg aac agc   1296
Pro Ser Ser Tyr Gly Asn Ser Ser Pro Pro Leu Asn Lys Met Asn Ser
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aac gcc ctc act cct aca acc att cct gat ggc atg gga gcc aac att   1392
Asn Ala Leu Thr Pro Thr Thr Ile Pro Asp Gly Met Gly Ala Asn Ile
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ccc atg atg ggc acc cac atg cca atg gct gga gac atg aat gga ctc   1440
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Ser Pro Thr Gln Ala Leu Pro Pro Pro Leu Ser Met Pro Ser Thr Ser
             485   490   495

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             500   505   510

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Gln Gly Leu Thr Thr Ile Tyr Gln Ile Glu His Tyr Ser Met Asp Asp
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ctg gca agt ctg aaa atc cct gag caa ttt cga cat gcg atc tgg aag    1680
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545             550             555             560

ggc atc ctg gac cac cgg cag ctc cac gaa ttc tcc tcc cct tct cat    1728
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ctc ctg cgg acc cca agc agt gcc tct aca gtc agt gtg ggc tcc agt    1776
Leu Leu Arg Thr Pro Ser Ser Ala Ser Thr Val Ser Val Gly Ser Ser
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gag acc cgg ggt gag cgt gtt att gat gct gtg cga ttc acc ctc cgc    1824
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cag acc atc tct ttc cca ccc cga gat gag tgg aat gac ttc aac ttt    1872
Gln Thr Ile Ser Phe Pro Pro Arg Asp Glu Trp Asn Asp Phe Asn Phe
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cag cat atc tgg gat ttt ctg gaa cag cct ata tgt tca gtt cag ccc    96
Gln His Ile Trp Asp Phe Leu Glu Gln Pro Ile Cys Ser Val Gln Pro
                20              25              30

att gac ttg aac ttt gtg gat gaa cca tca gaa gat ggt gcg aca aac    144
Ile Asp Leu Asn Phe Val Asp Glu Pro Ser Glu Asp Gly Ala Thr Asn
                35              40              45

aag att gag att agc atg gac tgt atc cgc atg cag gac tcg gac ctg    192
Lys Ile Glu Ile Ser Met Asp Cys Ile Arg Met Gln Asp Ser Asp Leu
            50              55              60

agt gac ccc atg tgg cca cag tac acg aac ctg ggg ctc ctg aac agc    240
Ser Asp Pro Met Trp Pro Gln Tyr Thr Asn Leu Gly Leu Leu Asn Ser
65              70              75              80
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atg gac cag cag att cag aac ggc tcc tcg tcc acc agt ccc tat aac    288
Met Asp Gln Gln Ile Gln Asn Gly Ser Ser Ser Thr Ser Pro Tyr Asn
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aca gac cac gcg cag aac agc gtc acg gcg ccc tcg ccc tac gca cag    336
Thr Asp His Ala Gln Asn Ser Val Thr Ala Pro Ser Pro Tyr Ala Gln
            100                 105                 110

ccc agc tcc acc ttc gat gct ctc tct cca tca ccc gcc atc ccc tcc    384
Pro Ser Ser Thr Phe Asp Ala Leu Ser Pro Ser Pro Ala Ile Pro Ser
            115                 120                 125

aac acc gac tac cca ggc ccg cac agt ttc gac gtg tcc ttc cag cag    432
Asn Thr Asp Tyr Pro Gly Pro His Ser Phe Asp Val Ser Phe Gln Gln
        130                 135                 140

tcg agc acc gcc aag tcg gcc acc tgg acg tat tcc act gaa ctg aag    480
Ser Ser Thr Ala Lys Ser Ala Thr Trp Thr Tyr Ser Thr Glu Leu Lys
145                 150                 155                 160

aaa ctc tac tgc caa att gca aag aca tgc ccc atc cag atc aag gtg    528
Lys Leu Tyr Cys Gln Ile Ala Lys Thr Cys Pro Ile Gln Ile Lys Val
                165                 170                 175

atg acc cca cct cct cag gga gct gtt atc cgc gcc atg cct gtc tac    576
Met Thr Pro Pro Pro Gln Gly Ala Val Ile Arg Ala Met Pro Val Tyr
            180                 185                 190

aaa aaa gct gag cac gtc acg gag gtg gtg aag cgg tgc ccc aac cat    624
Lys Lys Ala Glu His Val Thr Glu Val Val Lys Arg Cys Pro Asn His
            195                 200                 205

gag ctg agc cgt gaa ttc aac gag gga cag att gcc cct cct agt cat    672
Glu Leu Ser Arg Glu Phe Asn Glu Gly Gln Ile Ala Pro Pro Ser His
            210                 215                 220

ttg att cga gta gag ggg aac agc cat gcc cag tat gta gaa gat ccc    720
Leu Ile Arg Val Glu Gly Asn Ser His Ala Gln Tyr Val Glu Asp Pro
225                 230                 235                 240

atc aca gga aga cag agt gtg ctg gta cct tat gag cca ccc cag gtt    768
Ile Thr Gly Arg Gln Ser Val Leu Val Pro Tyr Glu Pro Pro Gln Val
                245                 250                 255

ggc act gaa ttc acg aca gtc ttg tac aat ttc atg tgt aac agc agt    816
Gly Thr Glu Phe Thr Thr Val Leu Tyr Asn Phe Met Cys Asn Ser Ser
                260                 265                 270

tgt gtt gga ggg atg aac cgc cgt cca att tta atc att gtt act ctg    864
Cys Val Gly Gly Met Asn Arg Arg Pro Ile Leu Ile Ile Val Thr Leu
            275                 280                 285

gaa acc aga gat ggg caa gtc ctg ggc cga cgc tgc ttt gag gcc cgg    912
Glu Thr Arg Asp Gly Gln Val Leu Gly Arg Arg Cys Phe Glu Ala Arg
        290                 295                 300
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atc tgt gct tgc cca gga aga gac agg aag gcg gat gaa gat agc atc    960
Ile Cys Ala Cys Pro Gly Arg Asp Arg Lys Ala Asp Glu Asp Ser Ile
305                 310             315             320

aga aag cag caa gtt tcg gac agt aca aag aac ggt gat ggt acg aag   1008
Arg Lys Gln Gln Val Ser Asp Ser Thr Lys Asn Gly Asp Gly Thr Lys
                325             330             335

cgc ccg ttt cgt cag aac aca cat ggt atc cag atg aca tcc atc aag   1056
Arg Pro Phe Arg Gln Asn Thr His Gly Ile Gln Met Thr Ser Ile Lys
                340             345             350

aaa cga aga tcc cca gat gat gaa ctg tta tac tta cca gtg agg ggc   1104
Lys Arg Arg Ser Pro Asp Asp Glu Leu Leu Tyr Leu Pro Val Arg Gly
            355             360             365

cgt gag act tat gaa atg ctg ttg aag atc aaa gag tcc ctg gaa ctc   1152
Arg Glu Thr Tyr Glu Met Leu Leu Lys Ile Lys Glu Ser Leu Glu Leu
        370             375             380

atg cag tac ctt cct cag cac aca att gaa acg tac agg caa cag caa   1200
Met Gln Tyr Leu Pro Gln His Thr Ile Glu Thr Tyr Arg Gln Gln Gln
385             390             395             400

cag cag cag cac cag cac tta ctt cag aaa cag acc tca ata cag tct   1248
Gln Gln Gln His Gln His Leu Leu Gln Lys Gln Thr Ser Ile Gln Ser
                405             410             415

cca tct tca tat ggt aac agc tcc cca cct ctg aac aaa atg aac agc   1296
Pro Ser Ser Tyr Gly Asn Ser Ser Pro Pro Leu Asn Lys Met Asn Ser
                420             425             430

atg aac aag ctg cct tct gtg agc cag ctt atc aac cct cag cag cgc   1344
Met Asn Lys Leu Pro Ser Val Ser Gln Leu Ile Asn Pro Gln Gln Arg
        435             440             445

aac gcc ctc act cct aca acc att cct gat ggc atg gga gcc aac att   1392
Asn Ala Leu Thr Pro Thr Thr Ile Pro Asp Gly Met Gly Ala Asn Ile
        450             455             460

ccc atg atg ggc acc cac atg cca atg gct gga gac atg aat gga ctc   1440
Pro Met Met Gly Thr His Met Pro Met Ala Gly Asp Met Asn Gly Leu
465             470             475             480

agc ccc acc cag gca ctc cct ccc cca ctc tcc atg cca tcc acc tcc   1488
Ser Pro Thr Gln Ala Leu Pro Pro Pro Leu Ser Met Pro Ser Thr Ser
                485             490             495

cac tgc aca ccc cca cct ccg tat ccc aca gat tgc agc att gtc agg   1536
His Cys Thr Pro Pro Pro Pro Tyr Pro Thr Asp Cys Ser Ile Val Arg
                500             505             510

atc tgg caa gtc tga                                               1551
Ile Trp Gln Val
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 1               5                  10                  15

cag cat atc tgg gat ttt ctg gaa cag cct ata tgt tca gtt cag ccc    96
Gln His Ile Trp Asp Phe Leu Glu Gln Pro Ile Cys Ser Val Gln Pro
                20                  25                  30

att gac ttg aac ttt gtg gat gaa cca tca gaa gat ggt gcg aca aac   144
Ile Asp Leu Asn Phe Val Asp Glu Pro Ser Glu Asp Gly Ala Thr Asn
            35                  40                  45

aag att gag att agc atg gac tgt atc cgc atg cag gac tcg gac ctg   192
Lys Ile Glu Ile Ser Met Asp Cys Ile Arg Met Gln Asp Ser Asp Leu
        50                  55                  60

agt gac ccc atg tgg cca cag tac acg aac ctg ggg ctc ctg aac agc   240
Ser Asp Pro Met Trp Pro Gln Tyr Thr Asn Leu Gly Leu Leu Asn Ser
65                  70                  75                  80

atg gac cag cag att cag aac ggc tcc tcg tcc acc agt ccc tat aac   288
Met Asp Gln Gln Ile Gln Asn Gly Ser Ser Ser Thr Ser Pro Tyr Asn
                85                  90                  95

aca gac cac gcg cag aac agc gtc acg gcg ccc tcg ccc tac gca cag   336
Thr Asp His Ala Gln Asn Ser Val Thr Ala Pro Ser Pro Tyr Ala Gln
            100                 105                 110

ccc agc tcc acc ttc gat gct ctc tct cca tca ccc gcc atc ccc tcc   384
Pro Ser Ser Thr Phe Asp Ala Leu Ser Pro Ser Pro Ala Ile Pro Ser
        115                 120                 125

aac acc gac tac cca ggc ccg cac agt ttc gac gtg tcc ttc cag cag   432
Asn Thr Asp Tyr Pro Gly Pro His Ser Phe Asp Val Ser Phe Gln Gln
        130                 135                 140

tcg agc acc gcc aag tcg gcc acc tgg acg tat tcc act gaa ctg aag   480
Ser Ser Thr Ala Lys Ser Ala Thr Trp Thr Tyr Ser Thr Glu Leu Lys
145                 150                 155                 160

aaa ctc tac tgc caa att gca aag aca tgc ccc atc cag atc aag gtg   528
Lys Leu Tyr Cys Gln Ile Ala Lys Thr Cys Pro Ile Gln Ile Lys Val
                165                 170                 175

atg acc cca cct cct cag gga gct gtt atc cgc gcc atg cct gtc tac   576
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                180                 185                 190
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aaa aaa gct gag cac gtc acg gag gtg gtg aag cgg tgc ccc aac cat    624
Lys Lys Ala Glu His Val Thr Glu Val Val Lys Arg Cys Pro Asn His
        195             200             205

gag ctg agc cgt gaa ttc aac gag gga cag att gcc cct cct agt cat    672
Glu Leu Ser Arg Glu Phe Asn Glu Gly Gln Ile Ala Pro Pro Ser His
        210             215             220

ttg att cga gta gag ggg aac agc cat gcc cag tat gta gaa gat ccc    720
Leu Ile Arg Val Glu Gly Asn Ser His Ala Gln Tyr Val Glu Asp Pro
225             230             235             240

atc aca gga aga cag agt gtg ctg gta cct tat gag cca ccc cag gtt    768
Ile Thr Gly Arg Gln Ser Val Leu Val Pro Tyr Glu Pro Pro Gln Val
                245             250             255

ggc act gaa ttc acg aca gtc ttg tac aat ttc atg tgt aac agc agt    816
Gly Thr Glu Phe Thr Thr Val Leu Tyr Asn Phe Met Cys Asn Ser Ser
            260             265             270

tgt gtt gga ggg atg aac cgc cgt cca att tta atc att gtt act ctg    864
Cys Val Gly Gly Met Asn Arg Arg Pro Ile Leu Ile Ile Val Thr Leu
        275             280             285

gaa acc aga gat ggg caa gtc ctg ggc cga cgc tgc ttt gag gcc cgg    912
Glu Thr Arg Asp Gly Gln Val Leu Gly Arg Arg Cys Phe Glu Ala Arg
    290             295             300

atc tgt gct tgc cca gga aga gac agg aag gcg gat gaa gat agc atc    960
Ile Cys Ala Cys Pro Gly Arg Asp Arg Lys Ala Asp Glu Asp Ser Ile
305             310             315             320

aga aag cag caa gtt tcg gac agt aca aag aac ggt gat ggt acg aag   1008
Arg Lys Gln Gln Val Ser Asp Ser Thr Lys Asn Gly Asp Gly Thr Lys
                325             330             335

cgc ccg ttt cgt cag aac aca cat ggt atc cag atg aca tcc atc aag   1056
Arg Pro Phe Arg Gln Asn Thr His Gly Ile Gln Met Thr Ser Ile Lys
            340             345             350

aaa cga aga tcc cca gat gat gaa ctg tta tac tta cca gtg agg ggc   1104
Lys Arg Arg Ser Pro Asp Asp Glu Leu Leu Tyr Leu Pro Val Arg Gly
        355             360             365

cgt gag act tat gaa atg ctg ttg aag atc aaa gag tcc ctg gaa ctc   1152
Arg Glu Thr Tyr Glu Met Leu Leu Lys Ile Lys Glu Ser Leu Glu Leu
        370             375             380

atg cag tac ctt cct cag cac aca att gaa acg tac agg caa cag caa   1200
Met Gln Tyr Leu Pro Gln His Thr Ile Glu Thr Tyr Arg Gln Gln Gln
385             390             395             400

cag cag cag cac cag cac tta ctt cag aaa cat ctc ctt tca gcc tgc   1248
Gln Gln Gln His Gln His Leu Leu Gln Lys His Leu Leu Ser Ala Cys
                405             410             415
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ttc agg aat gag ctt gtg gag ccc cgg aga gaa act cca aaa caa tct      1296
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            420                 425                 430

gac gtc ttc ttt aga cat tcc aag ccc cca aac cga tca gtg tac cca      1344
Asp Val Phe Phe Arg His Ser Lys Pro Pro Asn Arg Ser Val Tyr Pro
            435                 440                 445

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  1               5                  10                  15

tac acg aac ctg ggg ctc ctg aac agc atg gac cag cag att cag aac       96
Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
            20                  25                  30

ggc tcc tcg tcc acc agt ccc tat aac aca gac cac gcg cag aac agc      144
Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
            35                  40                  45

gtc acg gcg ccc tcg ccc tac gca cag ccc agc tcc acc ttc gat gct      192
Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
         50                  55                  60

ctc tct cca tca ccc gcc atc ccc tcc aac acc gac tac cca ggc ccg      240
Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
 65                  70                  75                  80

cac agt ttc gac gtg tcc ttc cag cag tcg agc acc gcc aag tcg gcc      288
His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
                85                  90                  95

acc tgg acg tat tcc act gaa ctg aag aaa ctc tac tgc caa att gca      336
Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
                100                 105                 110

aag aca tgc ccc atc cag atc aag gtg atg acc cca cct cct cag gga      384
Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
            115                 120                 125

gct gtt atc cgc gcc atg cct gtc tac aaa aaa gct gag cac gtc acg      432
Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
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Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145             150             155             160

gag gga cag att gcc cct cct agt cat ttg att cga gta gag ggg aac        528
Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
                165             170             175

agc cat gcc cag tat gta gaa gat ccc atc aca gga aga cag agt gtg        576
Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
                180             185             190

ctg gta cct tat gag cca ccc cag gtt ggc act gaa ttc acg aca gtc        624
Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
                195             200             205

ttg tac aat ttc atg tgt aac agc agt tgt gtt gga ggg atg aac cgc        672
Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
        210             215             220

cgt cca att tta atc att gtt act ctg gaa acc aga gat ggg caa gtc        720
Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225             230             235             240

ctg ggc cga cgc tgc ttt gag gcc cgg atc tgt gct tgc cca gga aga        768
Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
                245             250             255

gac agg aag gcg gat gaa gat agc atc aga aag cag caa gtt tcg gac        816
Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
                260             265             270

agt aca aag aac ggt gat ggt acg aag cgc ccg ttt cgt cag aac aca        864
Ser Thr Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr
                275             280             285

cat ggt atc cag atg aca tcc atc aag aaa cga aga tcc cca gat gat        912
His Gly Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp
        290             295             300

gaa ctg tta tac tta cca gtg agg ggc cgt gag act tat gaa atg ctg        960
Glu Leu Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu
305             310             315             320

ttg aag atc aaa gag tcc ctg gaa ctc atg cag tac ctt cct cag cac       1008
Leu Lys Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His
                325             330             335

aca att gaa acg tac agg caa cag caa cag cag cag cac cag cac tta       1056
Thr Ile Glu Thr Tyr Arg Gln Gln Gln Gln Gln Gln His Gln His Leu
                340             345             350

ctt cag aaa cag acc tca ata cag tct cca tct tca tat ggt aac agc       1104
Leu Gln Lys Gln Thr Ser Ile Gln Ser Pro Ser Ser Tyr Gly Asn Ser
                355             360             365
```

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tcc cca cct ctg aac aaa atg aac agc atg aac aag ctg cct tct gtg      1152
Ser Pro Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val
    370             375             380

agc cag ctt atc aac cct cag cag cgc aac gcc ctc act cct aca acc      1200
Ser Gln Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr
385             390             395             400

att cct gat ggc atg gga gcc aac att ccc atg atg ggc acc cac atg      1248
Ile Pro Asp Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met
            405             410             415

cca atg gct gga gac atg aat gga ctc agc ccc acc cag gca ctc cct      1296
Pro Met Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro
            420             425             430

ccc cca ctc tcc atg cca tcc acc tcc cac tgc aca ccc cca cct ccg      1344
Pro Pro Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro
            435             440             445

tat ccc aca gat tgc agc att gtc agt ttc tta gcg agg ttg ggc tgt      1392
Tyr Pro Thr Asp Cys Ser Ile Val Ser Phe Leu Ala Arg Leu Gly Cys
        450             455             460

tca tca tgt ctg gac tat ttc acg acc cag ggg ctg acc acc atc tat      1440
Ser Ser Cys Leu Asp Tyr Phe Thr Thr Gln Gly Leu Thr Thr Ile Tyr
465             470             475             480

cag att gag cat tac tcc atg gat gat ctg gca agt ctg aaa atc cct      1488
Gln Ile Glu His Tyr Ser Met Asp Asp Leu Ala Ser Leu Lys Ile Pro
            485             490             495

gag caa ttt cga cat gcg atc tgg aag ggc atc ctg gac cac cgg cag      1536
Glu Gln Phe Arg His Ala Ile Trp Lys Gly Ile Leu Asp His Arg Gln
            500             505             510

ctc cac gaa ttc tcc tcc cct tct cat ctc ctg cgg acc cca agc agt      1584
Leu His Glu Phe Ser Ser Pro Ser His Leu Leu Arg Thr Pro Ser Ser
            515             520             525

gcc tct aca gtc agt gtg ggc tcc agt gag acc cgg ggt gag cgt gtt      1632
Ala Ser Thr Val Ser Val Gly Ser Ser Glu Thr Arg Gly Glu Arg Val
            530             535             540

att gat gct gtg cga ttc acc ctc cgc cag acc atc tct ttc cca ccc      1680
Ile Asp Ala Val Arg Phe Thr Leu Arg Gln Thr Ile Ser Phe Pro Pro
545             550             555             560

cga gat gag tgg aat gac ttc aac ttt gac atg gat gct cgc cgc aat      1728
Arg Asp Glu Trp Asn Asp Phe Asn Phe Asp Met Asp Ala Arg Arg Asn
            565             570             575

aag caa cag cgc atc aaa gag gag ggg gag tga                         1761
Lys Gln Gln Arg Ile Lys Glu Glu Gly Glu
            580             585
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<210> 5
<211> 1386

<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1383)

<400> 5

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atg ttg tac ctg gaa aac aat gcc cag act caa ttt agt gag cca cag    48
Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
 1               5                  10                  15

tac acg aac ctg ggg ctc ctg aac agc atg gac cag cag att cag aac    96
Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
             20                  25                  30

ggc tcc tcg tcc acc agt ccc tat aac aca gac cac gcg cag aac agc   144
Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
         35                  40                  45

gtc acg gcg ccc tcg ccc tac gca cag ccc agc tcc acc ttc gat gct   192
Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
     50                  55                  60

ctc tct cca tca ccc gcc atc ccc tcc aac acc gac tac cca ggc ccg   240
Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
 65                  70                  75                  80

cac agt ttc gac gtg tcc ttc cag cag tcg agc acc gcc aag tcg gcc   288
His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
                 85                  90                  95

acc tgg acg tat tcc act gaa ctg aag aaa ctc tac tgc caa att gca   336
Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
             100                 105                 110

aag aca tgc ccc atc cag atc aag gtg atg acc cca cct cct cag gga   384
Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
             115                 120                 125

gct gtt atc cgc gcc atg cct gtc tac aaa aaa gct gag cac gtc acg   432
Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
         130                 135                 140

gag gtg gtg aag cgg tgc ccc aac cat gag ctg agc cgt gaa ttc aac   480
Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145                 150                 155                 160

gag gga cag att gcc cct cct agt cat ttg att cga gta gag ggg aac   528
Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
                 165                 170                 175

agc cat gcc cag tat gta gaa gat ccc atc aca gga aga cag agt gtg   576
Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
             180                 185                 190
```

```
ctg gta cct tat gag cca ccc cag gtt ggc act gaa ttc acg aca gtc   624
Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
        195             200             205

ttg tac aat ttc atg tgt aac agc agt tgt gtt gga ggg atg aac cgc   672
Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
        210             215             220

cgt cca att tta atc att gtt act ctg gaa acc aga gat ggg caa gtc   720
Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225             230             235             240

ctg ggc cga cgc tgc ttt gag gcc cgg atc tgt gct tgc cca gga aga   768
Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
            245             250             255

gac agg aag gcg gat gaa gat agc atc aga aag cag caa gtt tcg gac   816
Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
            260             265             270

agt aca aag aac ggt gat ggt acg aag cgc ccg ttt cgt cag aac aca   864
Ser Thr Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr
            275             280             285

cat ggt atc cag atg aca tcc atc aag aaa cga aga tcc cca gat gat   912
His Gly Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp
        290             295             300

gaa ctg tta tac tta cca gtg agg ggc cgt gag act tat gaa atg ctg   960
Glu Leu Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu
305             310             315             320

ttg aag atc aaa gag tcc ctg gaa ctc atg cag tac ctt cct cag cac   1008
Leu Lys Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His
            325             330             335

aca att gaa acg tac agg caa cag caa cag cag cag cac cag cac tta   1056
Thr Ile Glu Thr Tyr Arg Gln Gln Gln Gln Gln Gln His Gln His Leu
        340             345 .           350

ctt cag aaa cag acc tca ata cag tct cca tct tca tat ggt aac agc   1104
Leu Gln Lys Gln Thr Ser Ile Gln Ser Pro Ser Ser Tyr Gly Asn Ser
        355             360             365

tcc cca cct ctg aac aaa atg aac agc atg aac aag ctg cct tct gtg   1152
Ser Pro Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val
        370         .   375             380

agc cag ctt atc aac cct cag cag cgc aac gcc ctc act cct aca acc   1200
Ser Gln Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr
385             390             395             400

att cct gat ggc atg gga gcc aac att ccc atg atg ggc acc cac atg   1248
Ile Pro Asp Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met
            405             410             415
```

```
cca atg gct gga gac atg aat gga ctc agc ccc acc cag gca ctc cct     1296
Pro Met Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro
            420             425                 430

ccc cca ctc tcc atg cca tcc acc tcc cac tgc aca ccc cca cct ccg     1344
Pro Pro Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro
            435             440                 445

tat ccc aca gat tgc agc att gtc agg atc tgg caa gtc tga             1386
Tyr Pro Thr Asp Cys Ser Ile Val Arg Ile Trp Gln Val
        450             455             460
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<210> 6
<211> 1182
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)..(1179)

<400> 6
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atg ttg tac ctg gaa aac aat gcc cag act caa ttt agt gag cca cag     48
Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
  1               5                  10                  15

tac acg aac ctg ggg ctc ctg aac agc atg gac cag cag att cag aac     96
Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
            20                  25                  30

ggc tcc tcg tcc acc agt ccc tat aac aca gac cac gcg cag aac agc     144
Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
            35                  40                  45

gtc acg gcg ccc tcg ccc tac gca cag ccc agc tcc acc ttc gat gct     192
Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
        50                  55                  60

ctc tct cca tca ccc gcc atc ccc tcc aac acc gac tac cca ggc ccg     240
Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
 65                  70                  75                  80

cac agt ttc gac gtg tcc ttc cag cag tcg agc acc gcc aag tcg gcc     288
His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
                85                  90                  95

acc tgg acg tat tcc act gaa ctg aag aaa ctc tac tgc caa att gca     336
Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
            100                 105                 110

aag aca tgc ccc atc cag atc aag gtg atg acc cca cct cct cag gga     384
Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
            115                 120                 125

gct gtt atc cgc gcc atg cct gtc tac aaa aaa gct gag cac gtc acg     432
Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
            130                 135                 140
```

```
gag gtg gtg aag cgg tgc ccc aac cat gag ctg agc cgt gaa ttc aac    480
Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145                 150                 155                 160

gag gga cag att gcc cct cct agt cat ttg att cga gta gag ggg aac    528
Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
                165                 170                 175

agc cat gcc cag tat gta gaa gat ccc atc aca gga aga cag agt gtg    576
Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
                180                 185                 190

ctg gta cct tat gag cca ccc cag gtt ggc act gaa ttc acg aca gtc    624
Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
                195                 200                 205

ttg tac aat ttc atg tgt aac agc agt tgt gtt gga ggg atg aac cgc    672
Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
                210                 215                 220

cgt cca att tta atc att gtt act ctg gaa acc aga gat ggg caa gtc    720
Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225                 230                 235                 240

ctg ggc cga cgc tgc ttt gag gcc cgg atc tgt gct tgc cca gga aga    768
Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
                245                 250                 255

gac agg aag gcg gat gaa gat agc atc aga aag cag caa gtt tcg gac    816
Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
                260                 265                 270

agt aca aag aac ggt gat ggt acg aag cgc ccg ttt cgt cag aac aca    864
Ser Thr Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr
                275                 280                 285

cat ggt atc cag atg aca tcc atc aag aaa cga aga tcc cca gat gat    912
His Gly Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp
    290                 295                 300

gaa ctg tta tac tta cca gtg agg ggc cgt gag act tat gaa atg ctg    960
Glu Leu Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu
305                 310                 315                 320

ttg aag atc aaa gag tcc ctg gaa ctc atg cag tac ctt cct cag cac    1008
Leu Lys Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His
                325                 330                 335

aca att gaa acg tac agg caa cag caa cag cag cag cac cag cac tta    1056
Thr Ile Glu Thr Tyr Arg Gln Gln Gln Gln Gln Gln His Gln His Leu
                340                 345                 350

ctt cag aaa cat ctc ctt tca gcc tgc ttc agg aat gag ctt gtg gag    1104
Leu Gln Lys His Leu Leu Ser Ala Cys Phe Arg Asn Glu Leu Val Glu
                355                 360                 365
```

```
ccc cgg aga gaa act cca aaa caa tct gac gtc ttc ttt aga cat tcc    1152
Pro Arg Arg Glu Thr Pro Lys Gln Ser Asp Val Phe Phe Arg His Ser
    370             375             380

aag ccc cca aac cga tca gtg tac cca tag                            1182
Lys Pro Pro Asn Arg Ser Val Tyr Pro
385             390
```

<210> 7
<211> 2043
<212> DNA
<213> murine

<220>
<221> CDS
<222> (1)..(2040)

<400> 7
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atg aat ttt gaa act tca cgg tgt gcc acc cta cag tac tgc ccc gac    48
Met Asn Phe Glu Thr Ser Arg Cys Ala Thr Leu Gln Tyr Cys Pro Asp
  1           5             10              15

cct tac atc cag cgt ttc ata gaa acc cca gct cat ttc tcg tgg aaa    96
Pro Tyr Ile Gln Arg Phe Ile Glu Thr Pro Ala His Phe Ser Trp Lys
            20              25              30

gaa agt tat tac aga tct gcc atg tcg cag agc acc cag aca agc gag    144
Glu Ser Tyr Tyr Arg Ser Ala Met Ser Gln Ser Thr Gln Thr Ser Glu
        35              40              45

ttc ctc agc cca gag gtc ttc cag cat atc tgg gat ttt ctg gaa cag    192
Phe Leu Ser Pro Glu Val Phe Gln His Ile Trp Asp Phe Leu Glu Gln
    50              55              60

cct ata tgc tca gta cag ccc atc gag ttg aac ttt gtg gat gaa cct    240
Pro Ile Cys Ser Val Gln Pro Ile Glu Leu Asn Phe Val Asp Glu Pro
65              70              75              80

tcc gaa aat ggt gca aca aac aag att gag att agc atg gat tgt atc    288
Ser Glu Asn Gly Ala Thr Asn Lys Ile Glu Ile Ser Met Asp Cys Ile
                85              90              95

cgc atg caa gac tca gac ctc agt gac ccc atg tgg cca cag tac acg    336
Arg Met Gln Asp Ser Asp Leu Ser Asp Pro Met Trp Pro Gln Tyr Thr
            100             105             110

aac ctg ggg ctc ctg aac agc atg gac cag cag att cag aac ggc tcc    384
Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn Gly Ser
        115             120             125

tcg tcc acc agc ccc tac aac aca gac cac gca cag aat agc gtg acg    432
Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser Val Thr
    130             135             140

gcg ccc tcg ccc tat gca cag ccc agc tcc acc ttt gat gcc ctc tct    480
Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala Leu Ser
145             150             155             160
```

```
cca tcc cct gcc att ccc tcc aac aca gat tac ccg ggc cca cac agc    528
Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro His Ser
            165             170             175

ttc gat gtg tcc ttc cag cag tca agc act gcc aag tca gcc acc tgg    576
Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala Thr Trp
            180             185             190

acg tat tcc acc gaa ctg aag aag ctg tac tgc cag att gcg aag aca    624
Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala Lys Thr
            195             200             205

tgc ccc atc cag atc aag gtg atg acc cca ccc cca cag ggc gct gtt    672
Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly Ala Val
        210             215             220

atc cgt gcc atg cct gtc tac aag aaa gct gag cat gtc acc gag gtt    720
Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr Glu Val
225             230             235             240

gtg aaa cga tgc cct aac cat gag ctg agc cgt gag ttc aat gag gga    768
Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn Glu Gly
            245             250             255

cag att gcc cct ccc agt cat ctg att cga gta gaa ggg aac agc cat    816
Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn Ser His
            260             265             270

gcc cag tat gta gaa gat cct atc acg gga agg cag agc gtg ctg gtc    864
Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val Leu Val
            275             280             285

cct tat gag cca cca cag gtt ggc act gaa ttc aca aca gtc ctg tac    912
Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val Leu Tyr
            290             295             300

aat ttc atg tgt aac agc agc tgc gtc gga gga atg aac aga cgt cca    960
Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg Arg Pro
305             310             315             320

att tta atc atc gtt act ctg gaa acc aga gat ggg caa gtc ctg ggc   1008
Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val Leu Gly
            325             330             335

cga cgg tgc ttt gag gcc cgg atc tgt gct tgc cca gga aga gac cgg   1056
Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg Asp Arg
            340             345             350

aag gca gat gaa gac agc atc aga aag cag caa gta tcg gac agc gca   1104
Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp Ser Ala
            355             360             365

aag aac ggc gat ggt acg aag cgc cct ttc cgt cag aat aca cac gga   1152
Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr His Gly
            370             375             380
```

```
atc cag atg act tcc atc aag aaa cgg aga tcc cca gat gat gag ctg      1200
Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp Glu Leu
385                 390                 395                 400

ctg tac cta cca gtg aga ggt cgt gag acg tac gag atg ttg ctg aag      1248
Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu Leu Lys
                    405                 410                 415

atc aaa gag tca ctg gag ctc atg cag tac ctc cct cag cac acg atc      1296
Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His Thr Ile
                420                 425                 430

gaa acg tac agg cag cag cag cag cag cag cac cag cac cta ctt cag      1344
Glu Thr Tyr Arg Gln Gln Gln Gln Gln Gln His Gln His Leu Leu Gln
            435                 440                 445

aaa cag acc tcg atg cag tct cag tct tca tat ggc aac agt tcc cca      1392
Lys Gln Thr Ser Met Gln Ser Gln Ser Ser Tyr Gly Asn Ser Ser Pro
        450                 455                 460

cct ctg aac aaa atg aac agc atg aac aag ctg cct tcc gtg agc cag      1440
Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val Ser Gln
465                 470                 475                 480

ctt atc aac cca cag cag cgc aat gcc ctc act ccc acc acc atg cct      1488
Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr Met Pro
                485                 490                 495

gag ggc atg gga gcc aac att cct atg atg ggc act cac atg cca atg      1536
Glu Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met Pro Met
            500                 505                 510

gct gga gac atg aat gga ctc agc cct acc caa gct ctc cct cct cca      1584
Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro Pro Pro
            515                 520                 525

ctc tcc atg ccc tcc acc tcc cac tgc acc cca cca ccg ccc tac ccc      1632
Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro Tyr Pro
        530                 535                 540

aca gac tgc agc att gtc agt ttc tta gca agg ttg ggc tgc tca tca      1680
Thr Asp Cys Ser Ile Val Ser Phe Leu Ala Arg Leu Gly Cys Ser Ser
545                 550                 555                 560

tgc ctg gac tat ttc acg acc cag ggg ctg acc acc atc tat cag att      1728
Cys Leu Asp Tyr Phe Thr Thr Gln Gly Leu Thr Thr Ile Tyr Gln Ile
                565                 570                 575

gag cat tac tcc atg gat gat ttg gca agt ctg aag atc cct gaa cag      1776
Glu His Tyr Ser Met Asp Asp Leu Ala Ser Leu Lys Ile Pro Glu Gln
                580                 585                 590

ttc cga cat gcc atc tgg aag ggc atc ctg gac cac agg cag ctg cac      1824
Phe Arg His Ala Ile Trp Lys Gly Ile Leu Asp His Arg Gln Leu His
                595                 600                 605
```

```
gac ttc tcc tca cct cct cat ctc ctg agg acc cca agt ggt gcc tct      1872
Asp Phe Ser Ser Pro Pro His Leu Leu Arg Thr Pro Ser Gly Ala Ser
    610             615             620

acc gtc agt gtg ggc tcc agt gag acc cgt ggt gaa cgt gtg atc gat      1920
Thr Val Ser Val Gly Ser Ser Glu Thr Arg Gly Glu Arg Val Ile Asp
625             630             635             640

gcc gtg cgc ttt acc ctc cgc cag acc atc tct ttt cca ccc cgt gac      1968
Ala Val Arg Phe Thr Leu Arg Gln Thr Ile Ser Phe Pro Pro Arg Asp
            645             650             655

gag tgg aat gat ttc aac ttt gac atg gat tct cgt cgc aac aag cag      2016
Glu Trp Asn Asp Phe Asn Phe Asp Met Asp Ser Arg Arg Asn Lys Gln
            660             665             670

cag cgt atc aaa gag gaa gga gaa tga                                  2043
Gln Arg Ile Lys Glu Glu Gly Glu
            675             680


<210> 8
<211> 1668
<212> DNA
<213> murine

<220>
<221> CDS
<222> (1)..(1665)

<400> 8
atg aat ttt gaa act tca cgg tgt gcc acc cta cag tac tgc ccc gac       48
Met Asn Phe Glu Thr Ser Arg Cys Ala Thr Leu Gln Tyr Cys Pro Asp
1               5               10              15

cct tac atc cag cgt ttc ata gaa acc cca gct cat ttc tcg tgg aaa       96
Pro Tyr Ile Gln Arg Phe Ile Glu Thr Pro Ala His Phe Ser Trp Lys
            20              25              30

gaa agt tat tac aga tct gcc atg tcg cag agc acc cag aca agc gag      144
Glu Ser Tyr Tyr Arg Ser Ala Met Ser Gln Ser Thr Gln Thr Ser Glu
            35              40              45

ttc ctc agc cca gag gtc ttc cag cat atc tgg gat ttt ctg gaa cag      192
Phe Leu Ser Pro Glu Val Phe Gln His Ile Trp Asp Phe Leu Glu Gln
        50              55              60

cct ata tgc tca gta cag ccc atc gag ttg aac ttt gtg gat gaa cct      240
Pro Ile Cys Ser Val Gln Pro Ile Glu Leu Asn Phe Val Asp Glu Pro
65              70              75              80

tcc gaa aat ggt gca aca aac aag att gag att agc atg gat tgt atc      288
Ser Glu Asn Gly Ala Thr Asn Lys Ile Glu Ile Ser Met Asp Cys Ile
                85              90              95

cgc atg caa gac tca gac ctc agt gac ccc atg tgg cca cag tac acg      336
Arg Met Gln Asp Ser Asp Leu Ser Asp Pro Met Trp Pro Gln Tyr Thr
            100             105             110
```

```
aac ctg ggg ctc ctg aac agc atg gac cag cag att cag aac ggc tcc   384
Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn Gly Ser
        115                 120                 125

tcg tcc acc agc ccc tac aac aca gac cac gca cag aat agc gtg acg   432
Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser Val Thr
        130                 135                 140

gcg ccc tcg ccc tat gca cag ccc agc tcc acc ttt gat gcc ctc tct   480
Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala Leu Ser
145                 150                 155                 160

cca tcc cct gcc att ccc tcc aac aca gat tac ccg ggc cca cac agc   528
Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro His Ser
                165                 170                 175

ttc gat gtg tcc ttc cag cag tca agc act gcc aag tca gcc acc tgg   576
Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala Thr Trp
                180                 185                 190

acg tat tcc acc gaa ctg aag aag ctg tac tgc cag att gcg aag aca   624
Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala Lys Thr
            195                 200                 205

tgc ccc atc cag atc aag gtg atg acc cca ccc cca cag ggc gct gtt   672
Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly Ala Val
    210                 215                 220

atc cgt gcc atg cct gtc tac aag aaa gct gag cat gtc acc gag gtt   720
Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr Glu Val
225                 230                 235                 240

gtg aaa cga tgc cct aac cat gag ctg agc cgt gag ttc aat gag gga   768
Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn Glu Gly
                245                 250                 255

cag att gcc cct ccc agt cat ctg att cga gta gaa ggg aac agc cat   816
Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn Ser His
                260                 265                 270

gcc cag tat gta gaa gat cct atc acg gga agg cag agc gtg ctg gtc   864
Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val Leu Val
            275                 280                 285

cct tat gag cca cca cag gtt ggc act gaa ttc aca aca gtc ctg tac   912
Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val Leu Tyr
        290                 295                 300

aat ttc atg tgt aac agc agc tgc gtc gga gga atg aac aga cgt cca   960
Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg Arg Pro
305                 310                 315                 320

att tta atc atc gtt act ctg gaa acc aga gat ggg caa gtc ctg ggc  1008
Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val Leu Gly
                325                 330                 335
```

```
cga cgg tgc ttt gag gcc cgg atc tgt gct tgc cca gga aga gac cgg      1056
Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg Asp Arg
            340             345             350

aag gca gat gaa gac agc atc aga aag cag caa gta tcg gac agc gca      1104
Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp Ser Ala
            355             360             365

aag aac ggc gat ggt acg aag cgc cct ttc cgt cag aat aca cac gga      1152
Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr His Gly
            370             375             380

atc cag atg act tcc atc aag aaa cgg aga tcc cca gat gat gag ctg      1200
Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp Glu Leu
385             390             395             400

ctg tac cta cca gtg aga ggt cgt gag acg tac gag atg ttg ctg aag      1248
Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu Leu Lys
                405             410             415

atc aaa gag tca ctg gag ctc atg cag tac ctc cct cag cac acg atc      1296
Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His Thr Ile
            420             425             430

gaa acg tac agg cag cag cag cag cag cag cac cag cac cta ctt cag      1344
Glu Thr Tyr Arg Gln Gln Gln Gln Gln Gln His Gln His Leu Leu Gln
            435             440             445

aaa cag acc tcg atg cag tct cag tct tca tat ggc aac agt tcc cca      1392
Lys Gln Thr Ser Met Gln Ser Gln Ser Ser Tyr Gly Asn Ser Ser Pro
450             455             460

cct ctg aac aaa atg aac agc atg aac aag ctg cct tcc gtg agc cag      1440
Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val Ser Gln
465             470             475             480

ctt atc aac cca cag cag cgc aat gcc ctc act ccc acc acc atg cct      1488
Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr Met Pro
                485             490             495

gag ggc atg gga gcc aac att cct atg atg ggc act cac atg cca atg      1536
Glu Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met Pro Met
            500             505             510

gct gga gac atg aat gga ctc agc cct acc caa gct ctc cct cct cca      1584
Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro Pro Pro
            515             520             525

ctc tcc atg ccc tcc acc tcc cac tgc acc cca cca ccg ccc tac ccc      1632
Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro Tyr Pro
            530             535             540

aca gac tgc agc att gtc agg att tgg caa gtc tga      1668
Thr Asp Cys Ser Ile Val Arg Ile Trp Gln Val
545             550             555
```

<210> 9
<211> 1452

<212> DNA
<213> murine

<220>
<221> CDS
<222> (1)..(1449)

<400> 9

```
atg aat ttt gaa act tca cgg tgt gcc acc cta cag tac tgc ccc gac    48
Met Asn Phe Glu Thr Ser Arg Cys Ala Thr Leu Gln Tyr Cys Pro Asp
 1               5                  10                  15

cct tac atc cag cgt ttc ata gaa acc cca gct cat ttc tcg tgg aaa    96
Pro Tyr Ile Gln Arg Phe Ile Glu Thr Pro Ala His Phe Ser Trp Lys
                20                  25                  30

gaa agt tat tac aga tct gcc atg tcg cag agc acc cag aca agc gag   144
Glu Ser Tyr Tyr Arg Ser Ala Met Ser Gln Ser Thr Gln Thr Ser Glu
            35                  40                  45

ttc ctc agc cca gag gtc ttc cag cat atc tgg gat ttt ctg gaa cag   192
Phe Leu Ser Pro Glu Val Phe Gln His Ile Trp Asp Phe Leu Glu Gln
        50                  55                  60

cct ata tgc tca gta cag ccc atc gag ttg aac ttt gtg gat gaa cct   240
Pro Ile Cys Ser Val Gln Pro Ile Glu Leu Asn Phe Val Asp Glu Pro
65                  70                  75                  80

tcc gaa aat ggt gca aca aac aag att gag att agc atg gat tgt atc   288
Ser Glu Asn Gly Ala Thr Asn Lys Ile Glu Ile Ser Met Asp Cys Ile
                85                  90                  95

cgc atg caa gac tca gac ctc agt gac ccc atg tgg cca cag tac acg   336
Arg Met Gln Asp Ser Asp Leu Ser Asp Pro Met Trp Pro Gln Tyr Thr
            100                 105                 110

aac ctg ggg ctc ctg aac agc atg gac cag cag att cag aac ggc tcc   384
Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn Gly Ser
        115                 120                 125

tcg tcc acc agc ccc tac aac aca gac cac gca cag aat agc gtg acg   432
Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser Val Thr
    130                 135                 140

gcg ccc tcg ccc tat gca cag ccc agc tcc acc ttt gat gcc ctc tct   480
Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala Leu Ser
145                 150                 155                 160

cca tcc cct gcc att ccc tcc aac aca gat tac ccg ggc cca cac agc   528
Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro His Ser
                165                 170                 175

ttc gat gtg tcc ttc cag cag tca agc act gcc aag tca gcc acc tgg   576
Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala Thr Trp
            180                 185                 190
```

```
acg tat tcc acc gaa ctg aag aag ctg tac tgc cag att gcg aag aca    624
Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala Lys Thr
        195             200             205

tgc ccc atc cag atc aag gtg atg acc cca ccc cca cag ggc gct gtt    672
Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly Ala Val
        210             215             220

atc cgt gcc atg cct gtc tac aag aaa gct gag cat gtc acc gag gtt    720
Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr Glu Val
225             230                 235             240

gtg aaa cga tgc cct aac cat gag ctg agc cgt gag ttc aat gag gga    768
Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn Glu Gly
            245             250             255

cag att gcc cct ccc agt cat ctg att cga gta gaa ggg aac agc cat    816
Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn Ser His
            260             265             270

gcc cag tat gta gaa gat cct atc acg gga agg cag agc gtg ctg gtc    864
Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val Leu Val
        275             280             285

cct tat gag cca cca cag gtt ggc act gaa ttc aca aca gtc ctg tac    912
Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val Leu Tyr
        290             295             300

aat ttc atg tgt aac agc agc tgc gtc gga gga atg aac aga cgt cca    960
Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg Arg Pro
305             310             315             320

att tta atc atc gtt act ctg gaa acc aga gat ggg caa gtc ctg ggc   1008
Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val Leu Gly
            325             330             335

cga cgg tgc ttt gag gcc cgg atc tgt gct tgc cca gga aga gac cgg   1056
Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg Asp Arg
            340             345             350

aag gca gat gaa gac agc atc aga aag cag caa gta tcg gac agc gca   1104
Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp Ser Ala
        355             360             365

aag aac ggc gat gct ttc cgt cag aat aca cac gga atc cag atg act   1152
Lys Asn Gly Asp Ala Phe Arg Gln Asn Thr His Gly Ile Gln Met Thr
        370             375             380

tcc atc aag aaa cgg aga tcc cca gat gat gag ctg ctg tac cta cca   1200
Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp Glu Leu Leu Tyr Leu Pro
385             390             395             400

gtg aga ggt cgt gag acg tac gag atg ttg ctg aag atc aaa gag tca   1248
Val Arg Gly Arg Glu Thr Tyr Glu Met Leu Leu Lys Ile Lys Glu Ser
            405             410             415
```

```
ctg gag ctc atg cag tac ctc cct cag cac acg atc gaa acg tac agg      1296
Leu Glu Leu Met Gln Tyr Leu Pro Gln His Thr Ile Glu Thr Tyr Arg
            420             425                 430

cag cag cag cag cag cag cac cag cac cta ctt cag aaa cat ctc ctt      1344
Gln Gln Gln Gln Gln Gln His Gln His Leu Leu Gln Lys His Leu Leu
            435             440                 445

tca gcc tgc ttc agg aat gag ctt gtg gag ccc cgg gga gaa gct ccg      1392
Ser Ala Cys Phe Arg Asn Glu Leu Val Glu Pro Arg Gly Glu Ala Pro
            450             455                 460

aca cag tct gac gtc ttc ttt aga cat tcc aac ccc cca aac cac tcc      1440
Thr Gln Ser Asp Val Phe Phe Arg His Ser Asn Pro Pro Asn His Ser
465             470             .       475                 480

gtg tac cca tag                                                      1452
Val Tyr Pro
```

```
<210> 10
<211> 1761
<212> DNA
<213> murine

<220>
<221> CDS
<222> (1)..(1758)

<400> 10
atg ttg tac ctg gaa aac aat gcc cag act caa ttt agt gag cca cag      48
Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
1               5                   10                  15

tac acg aac ctg ggg ctc ctg aac agc atg gac cag cag att cag aac      96
Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
            20              25                  30

ggc tcc tcg tcc acc agc ccc tac aac aca gac cac gca cag aat agc      144
Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
            35              40                  45

gtg acg gcg ccc tcg ccc tat gca cag ccc agc tcc acc ttt gat gcc      192
Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
        50              55                  60

ctc tct cca tcc cct gcc att ccc tcc aac aca gat tac ccg ggc cca      240
Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
65              70                  75                  80

cac agc ttc gat gtg tcc ttc cag cag tca agc act gcc aag tca gcc      288
His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
                85                  90                  95

acc tgg acg tat tcc acc gaa ctg aag aag ctg tac tgc cag att gcg      336
Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
                100                 105                 110
```

```
aag aca tgc ccc atc cag atc aag gtg atg acc cca ccc cca cag ggc    384
Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
        115             120             125

gct gtt atc cgt gcc atg cct gtc tac aag aaa gct gag cat gtc acc    432
Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
    130             135             140

gag gtt gtg aaa cga tgc cct aac cat gag ctg agc cgt gag ttc aat    480
Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145             150             155             160

gag gga cag att gcc cct ccc agt cat ctg att cga gta gaa ggg aac    528
Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
                165             170             175

agc cat gcc cag tat gta gaa gat cct atc acg gga agg cag agc gtg    576
Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
            180             185             190

ctg gtc cct tat gag cca cca cag gtt ggc act gaa ttc aca aca gtc    624
Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
            195             200             205

ctg tac aat ttc atg tgt aac agc agc tgc gtc gga gga atg aac aga    672
Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
    210             215             220

cgt cca att tta atc atc gtt act ctg gaa acc aga gat ggg caa gtc    720
Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225             230             235             240

ctg ggc cga cgg tgc ttt gag gcc cgg atc tgt gct tgc cca gga aga    768
Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
            245             250             255

gac cgg aag gca gat gaa gac agc atc aga aag cag caa gta tcg gac    816
Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
            260             265             270

agc gca aag aac ggc gat ggt acg aag cgc cct ttc cgt cag aat aca    864
Ser Ala Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr
            275             280             285

cac gga atc cag atg act tcc atc aag aaa cgg aga tcc cca gat gat    912
His Gly Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp
        290             295             300

gag ctg ctg tac cta cca gtg aga ggt cgt gag acg tac gag atg ttg    960
Glu Leu Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu
305             310             315             320

ctg aag atc aaa gag tca ctg gag ctc atg cag tac ctc cct cag cac   1008
Leu Lys Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His
            325             330             335
```

```
acg atc gaa acg tac agg cag cag cag cag cag cag cac cag cac cta    1056
Thr Ile Glu Thr Tyr Arg Gln Gln Gln Gln Gln Gln His Gln His Leu
            340             345             350


ctt cag aaa cag acc tcg atg cag tct cag tct tca tat ggc aac agt    1104
Leu Gln Lys Gln Thr Ser Met Gln Ser Gln Ser Ser Tyr Gly Asn Ser
            355             360             365


tcc cca cct ctg aac aaa atg aac agc atg aac aag ctg cct tcc gtg    1152
Ser Pro Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val
            370             375             380


agc cag ctt atc aac cca cag cag cgc aat gcc ctc act ccc acc acc    1200
Ser Gln Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr
385             390             395             400


atg cct gag ggc atg gga gcc aac att cct atg atg ggc act cac atg    1248
Met Pro Glu Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met
            405             410             415


cca atg gct gga gac atg aat gga ctc agc cct acc caa gct ctc cct    1296
Pro Met Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro
            420             425             430


cct cca ctc tcc atg ccc tcc acc tcc cac tgc acc cca cca ccg ccc    1344
Pro Pro Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro
            435             440             445


tac ccc aca gac tgc agc att gtc agt ttc tta gca agg ttg ggc tgc    1392
Tyr Pro Thr Asp Cys Ser Ile Val Ser Phe Leu Ala Arg Leu Gly Cys
            450             455             460


tca tca tgc ctg gac tat ttc acg acc cag ggg ctg acc acc atc tat    1440
Ser Ser Cys Leu Asp Tyr Phe Thr Thr Gln Gly Leu Thr Thr Ile Tyr
465             470             475             480


cag att gag cat tac tcc atg gat gat ttg gca agt ctg aag atc cct    1488
Gln Ile Glu His Tyr Ser Met Asp Asp Leu Ala Ser Leu Lys Ile Pro
            485             490             495


gaa cag ttc cga cat gcc atc tgg aag ggc atc ctg gac cac agg cag    1536
Glu Gln Phe Arg His Ala Ile Trp Lys Gly Ile Leu Asp His Arg Gln
            500             505             510


ctg cac gac ttc tcc tca cct cct cat ctc ctg agg acc cca agt ggt    1584
Leu His Asp Phe Ser Ser Pro Pro His Leu Leu Arg Thr Pro Ser Gly
            515             520             525


gcc tct acc gtc agt gtg ggc tcc agt gag acc cgt ggt gaa cgt gtg    1632
Ala Ser Thr Val Ser Val Gly Ser Ser Glu Thr Arg Gly Glu Arg Val
            530             535             540


atc gat gcc gtg cgc ttt acc ctc cgc cag acc atc tct ttt cca ccc    1680
Ile Asp Ala Val Arg Phe Thr Leu Arg Gln Thr Ile Ser Phe Pro Pro
545             550             555             560
```

```
cgt gac gag tgg aat gat ttc aac ttt gac atg gat tct cgt cgc aac    1728
Arg Asp Glu Trp Asn Asp Phe Asn Phe Asp Met Asp Ser Arg Arg Asn
                565             570             575

aag cag cag cgt atc aaa gag gaa gga gaa tga                        1761
Lys Gln Gln Arg Ile Lys Glu Glu Gly Glu
                580             585
```

<210> 11
<211> 1386
<212> DNA
<213> murine

<220>
<221> CDS
<222> (1)..(1383)

<400> 11
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atg ttg tac ctg gaa aac aat gcc cag act caa ttt agt gag cca cag    48
Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
  1               5                  10                  15

tac acg aac ctg ggg ctc ctg aac agc atg gac cag cag att cag aac    96
Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
                20                  25                  30

ggc tcc tcg tcc acc agc ccc tac aac aca gac cac gca cag aat agc    144
Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
                35                  40                  45

gtg acg gcg ccc tcg ccc tat gca cag ccc agc tcc acc ttt gat gcc    192
Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
     50                  55                  60

ctc tct cca tcc cct gcc att ccc tcc aac aca gat tac ccg ggc cca    240
Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
 65                  70                  75                  80

cac agc ttc gat gtg tcc ttc cag cag tca agc act gcc aag tca gcc    288
His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
                85                  90                  95

acc tgg acg tat tcc acc gaa ctg aag aag ctg tac tgc cag att gcg    336
Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
                100                 105                 110

aag aca tgc ccc atc cag atc aag gtg atg acc cca ccc cca cag ggc    384
Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
                115                 120                 125

gct gtt atc cgt gcc atg cct gtc tac aag aaa gct gag cat gtc acc    432
Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
                130                 135                 140

gag gtt gtg aaa cga tgc cct aac cat gag ctg agc cgt gag ttc aat    480
Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145                 150                 155                 160
```

```
gag gga cag att gcc cct ccc agt cat ctg att cga gta gaa ggg aac    528
Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
                165             170             175

agc cat gcc cag tat gta gaa gat cct atc acg gga agg cag agc gtg    576
Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
                180             185             190

ctg gtc cct tat gag cca cca cag gtt ggc act gaa ttc aca aca gtc    624
Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
                195             200             205

ctg tac aat ttc atg tgt aac agc agc tgc gtc gga gga atg aac aga    672
Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
        210             215             220

cgt cca att tta atc atc gtt act ctg gaa acc aga gat ggg caa gtc    720
Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225             230             235             240

ctg ggc cga cgg tgc ttt gag gcc cgg atc tgt gct tgc cca gga aga    768
Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
                245             250             255

gac cgg aag gca gat gaa gac agc atc aga aag cag caa gta tcg gac    816
Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
                260             265             270

agc gca aag aac ggc gat ggt acg aag cgc cct ttc cgt cag aat aca    864
Ser Ala Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr
                275             280             285

cac gga atc cag atg act tcc atc aag aaa cgg aga tcc cca gat gat    912
His Gly Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp
                290             295             300

gag ctg ctg tac cta cca gtg aga ggt cgt gag acg tac gag atg ttg    960
Glu Leu Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu
305             310             315             320

ctg aag atc aaa gag tca ctg gag ctc atg cag tac ctc cct cag cac   1008
Leu Lys Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His
                325             330             335

acg atc gaa acg tac agg cag cag cag cag cag cag cac cag cac cta   1056
Thr Ile Glu Thr Tyr Arg Gln Gln Gln Gln Gln Gln His Gln His Leu
                340             345             350

ctt cag aaa cag acc tcg atg cag tct cag tct tca tat ggc aac agt   1104
Leu Gln Lys Gln Thr Ser Met Gln Ser Gln Ser Ser Tyr Gly Asn Ser
                355             360             365

tcc cca cct ctg aac aaa atg aac agc atg aac aag ctg cct tcc gtg   1152
Ser Pro Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val
                370             375             380
```

```
agc cag ctt atc aac cca cag cag cgc aat gcc ctc act ccc acc acc    1200
Ser Gln Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr
385             390             395             400

atg cct gag ggc atg gga gcc aac att cct atg atg ggc act cac atg    1248
Met Pro Glu Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met
            405             410             415

cca atg gct gga gac atg aat gga ctc agc cct acc caa gct ctc cct    1296
Pro Met Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro
            420             425             430

cct cca ctc tcc atg ccc tcc acc tcc cac tgc acc cca cca ccg ccc    1344
Pro Pro Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro
            435             440             445

tac ccc aca gac tgc agc att gtc agg att tgg caa gtc tga            1386
Tyr Pro Thr Asp Cys Ser Ile Val Arg Ile Trp Gln Val
            450             455             460


<210> 12
<211> 1170
<212> DNA
<213> murine

<220>
<221> CDS
<222> (1)..(1167)

<400> 12
atg ttg tac ctg gaa aac aat gcc cag act caa ttt agt gag cca cag    48
Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
 1               5               10              15

tac acg aac ctg ggg ctc ctg aac agc atg gac cag cag att cag aac    96
Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
            20              25              30

ggc tcc tcg tcc acc agc ccc tac aac aca gac cac gca cag aat agc    144
Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
            35              40              45

gtg acg gcg ccc tcg ccc tat gca cag ccc agc tcc acc ttt gat gcc    192
Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
    50              55              60

ctc tct cca tcc cct gcc att ccc tcc aac aca gat tac ccg ggc cca    240
Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
 65              70              75              80

cac agc ttc gat gtg tcc ttc cag cag tca agc act gcc aag tca gcc    288
His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
                85              90              95

acc tgg acg tat tcc acc gaa ctg aag aag ctg tac tgc cag att gcg    336
Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
            100             105             110
```

```
aag aca tgc ccc atc cag atc aag gtg atg acc cca ccc cca cag ggc   384
Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
        115                 120                 125

gct gtt atc cgt gcc atg cct gtc tac aag aaa gct gag cat gtc acc   432
Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
        130                 135                 140

gag gtt gtg aaa cga tgc cct aac cat gag ctg agc cgt gag ttc aat   480
Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145                 150                 155                 . 160

gag gga cag att gcc cct ccc agt cat ctg att cga gta gaa ggg aac   528
Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
.               165                 170                 175

agc cat gcc cag tat gta gaa gat cct atc acg gga agg cag agc gtg   576
Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
                180                 185                 190

ctg gtc cct tat gag cca cca cag gtt ggc act gaa ttc aca aca gtc   624
Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
            195                 200                 205

ctg tac aat ttc atg tgt aac agc agc tgc gtc gga gga atg aac aga   672
Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
        210                 215                 220

cgt cca att tta atc atc gtt act ctg gaa acc aga gat ggg caa gtc   720
Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225                 230                 235                 240

ctg ggc cga cgg tgc ttt gag gcc cgg atc tgt gct tgc cca gga aga   768
Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
                245                 250                 255

gac cgg aag gca gat gaa gac agc atc aga aag cag caa gta tcg gac   816
Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
            260                 265                 270

agc gca aag aac ggc gat gct ttc cgt cag aat aca cac gga atc cag   864
Ser Ala Lys Asn Gly Asp Ala Phe Arg Gln Asn Thr His Gly Ile Gln
        275                 280                 285

atg act tcc atc aag aaa cgg aga tcc cca gat gat gag ctg ctg tac   912
Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp Glu Leu Leu Tyr
        290                 295                 300

cta cca gtg aga ggt cgt gag acg tac gag atg ttg ctg aag atc aaa   960
Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu Leu Lys Ile Lys
305                 310                 315                 320

gag tca ctg gag ctc atg cag tac ctc cct cag cac acg atc gaa acg   1008
Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His Thr Ile Glu Thr
                325                 330                 335
```

```
tac agg cag cag cag cag cag cag cac cag cac cta ctt cag aaa cat    1056
Tyr Arg Gln Gln Gln Gln Gln Gln His Gln His Leu Leu Gln Lys His
        340                 345             350

ctc ctt tca gcc tgc ttc agg aat gag ctt gtg gag ccc cgg gga gaa    1104
Leu Leu Ser Ala Cys Phe Arg Asn Glu Leu Val Glu Pro Arg Gly Glu
        355             360             365

gct ccg aca cag tct gac gtc ttc ttt aga cat tcc aac ccc cca aac    1152
Ala Pro Thr Gln Ser Asp Val Phe Phe Arg His Ser Asn Pro Pro Asn
        370             375             380

cac tcc gtg tac cca tag                                            1170
His Ser Val Tyr Pro
385
```

```
<210> 13
<211> 641
<212> PRT
<213> Homo sapiens

<400> 13
Met Ser Gln Ser Thr Gln Thr Asn Glu Phe Leu Ser Pro Glu Val Phe
 1               5                  10                  15

Gln His Ile Trp Asp Phe Leu Glu Gln Pro Ile Cys Ser Val Gln Pro
            20                  25                  30

Ile Asp Leu Asn Phe Val Asp Glu Pro Ser Glu Asp Gly Ala Thr Asn
        35                  40                  45

Lys Ile Glu Ile Ser Met Asp Cys Ile Arg Met Gln Asp Ser Asp Leu
    50                  55                  60

Ser Asp Pro Met Trp Pro Gln Tyr Thr Asn Leu Gly Leu Leu Asn Ser
65                  70                  75                  80

Met Asp Gln Gln Ile Gln Asn Gly Ser Ser Ser Thr Ser Pro Tyr Asn
                85                  90                  95

Thr Asp His Ala Gln Asn Ser Val Thr Ala Pro Ser Pro Tyr Ala Gln
            100                 105                 110

Pro Ser Ser Thr Phe Asp Ala Leu Ser Pro Ser Pro Ala Ile Pro Ser
        115                 120                 125

Asn Thr Asp Tyr Pro Gly Pro His Ser Phe Asp Val Ser Phe Gln Gln
    130                 135                 140

Ser Ser Thr Ala Lys Ser Ala Thr Trp Thr Tyr Ser Thr Glu Leu Lys
145                 150                 155                 160

Lys Leu Tyr Cys Gln Ile Ala Lys Thr Cys Pro Ile Gln Ile Lys Val
                165                 170                 175

Met Thr Pro Pro Pro Gln Gly Ala Val Ile Arg Ala Met Pro Val Tyr
            180                 185                 190
```

Lys Lys Ala Glu His Val Thr Glu Val Val Lys Arg Cys Pro Asn His
     195   200   205

Glu Leu Ser Arg Glu Phe Asn Glu Gly Gln Ile Ala Pro Pro Ser His
     210   215   220

Leu Ile Arg Val Glu Gly Asn Ser His Ala Gln Tyr Val Glu Asp Pro
225   230   235   240

Ile Thr Gly Arg Gln Ser Val Leu Val Pro Tyr Glu Pro Pro Gln Val
         245   250   255

Gly Thr Glu Phe Thr Thr Val Leu Tyr Asn Phe Met Cys Asn Ser Ser
       260   265   270

Cys Val Gly Gly Met Asn Arg Arg Pro Ile Leu Ile Ile Val Thr Leu
     275   280   285

Glu Thr Arg Asp Gly Gln Val Leu Gly Arg Arg Cys Phe Glu Ala Arg
     290   295   300

Ile Cys Ala Cys Pro Gly Arg Asp Arg Lys Ala Asp Glu Asp Ser Ile
305   310   315   320

Arg Lys Gln Gln Val Ser Asp Ser Thr Lys Asn Gly Asp Gly Thr Lys
         325   330   335

Arg Pro Phe Arg Gln Asn Thr His Gly Ile Gln Met Thr Ser Ile Lys
       340   345   350

Lys Arg Arg Ser Pro Asp Asp Glu Leu Leu Tyr Leu Pro Val Arg Gly
       355   360   365

Arg Glu Thr Tyr Glu Met Leu Leu Lys Ile Lys Glu Ser Leu Glu Leu
     370   375   380

Met Gln Tyr Leu Pro Gln His Thr Ile Glu Thr Tyr Arg Gln Gln Gln
385   390   395   400

Gln Gln Gln His Gln His Leu Leu Gln Lys Gln Thr Ser Ile Gln Ser
         405   410   415

Pro Ser Ser Tyr Gly Asn Ser Ser Pro Pro Leu Asn Lys Met Asn Ser
       420   425   430

Met Asn Lys Leu Pro Ser Val Ser Gln Leu Ile Asn Pro Gln Gln Arg
     435   440   445

Asn Ala Leu Thr Pro Thr Thr Ile Pro Asp Gly Met Gly Ala Asn Ile
     450   455   460

Pro Met Met Gly Thr His Met Pro Met Ala Gly Asp Met Asn Gly Leu
465   470   475   480

Ser Pro Thr Gln Ala Leu Pro Pro Pro Leu Ser Met Pro Ser Thr Ser
         485   490   495

His Cys Thr Pro Pro Pro Pro Tyr Pro Thr Asp Cys Ser Ile Val Ser
            500   505   510

Phe Leu Ala Arg Leu Gly Cys Ser Ser Cys Leu Asp Tyr Phe Thr Thr
            515   520   525

Gln Gly Leu Thr Thr Ile Tyr Gln Ile Glu His Tyr Ser Met Asp Asp
            530   535   540

Leu Ala Ser Leu Lys Ile Pro Glu Gln Phe Arg His Ala Ile Trp Lys
545   550   555   560

Gly Ile Leu Asp His Arg Gln Leu His Glu Phe Ser Ser Pro Ser His
            565   570   575

Leu Leu Arg Thr Pro Ser Ser Ala Ser Thr Val Ser Val Gly Ser Ser
            580   585   590

Glu Thr Arg Gly Glu Arg Val Ile Asp Ala Val Arg Phe Thr Leu Arg
            595   600   605

Gln Thr Ile Ser Phe Pro Pro Arg Asp Glu Trp Asn Asp Phe Asn Phe
            610   615   620

Asp Met Asp Ala Arg Arg Asn Lys Gln Gln Arg Ile Lys Glu Glu Gly
625   630   635   640

Glu

<210> 14
<211> 516
<212> PRT
<213> Homo sapiens

<400> 14
Met Ser Gln Ser Thr Gln Thr Asn Glu Phe Leu Ser Pro Glu Val Phe
  1   5   10   15

Gln His Ile Trp Asp Phe Leu Glu Gln Pro Ile Cys Ser Val Gln Pro
            20   25   30

Ile Asp Leu Asn Phe Val Asp Glu Pro Ser Glu Asp Gly Ala Thr Asn
            35   40   45

Lys Ile Glu Ile Ser Met Asp Cys Ile Arg Met Gln Asp Ser Asp Leu
    50   55   60

Ser Asp Pro Met Trp Pro Gln Tyr Thr Asn Leu Gly Leu Leu Asn Ser
65   70   75   80

Met Asp Gln Gln Ile Gln Asn Gly Ser Ser Ser Thr Ser Pro Tyr Asn
            85   90   95

Thr Asp His Ala Gln Asn Ser Val Thr Ala Pro Ser Pro Tyr Ala Gln
            100   105   110

Pro Ser Ser Thr Phe Asp Ala Leu Ser Pro Ser Pro Ala Ile Pro Ser
      115   120   125

Asn Thr Asp Tyr Pro Gly Pro His Ser Phe Asp Val Ser Phe Gln Gln
    130   135   .   140

Ser Ser Thr Ala Lys Ser Ala Thr Trp Thr Tyr Ser Thr Glu Leu Lys
145   150   155   160

Lys Leu Tyr Cys Gln Ile Ala Lys Thr Cys Pro Ile Gln Ile Lys Val
          165   170   175

Met Thr Pro Pro Pro Gln Gly Ala Val Ile Arg Ala Met Pro Val Tyr
        180   185   190

Lys Lys Ala Glu His Val Thr Glu Val Val Lys Arg Cys Pro Asn His
      195   200   205

Glu Leu Ser Arg Glu Phe Asn Glu Gly Gln Ile Ala Pro Pro Ser His
      210   215   220

Leu Ile Arg Val Glu Gly Asn Ser His Ala Gln Tyr Val Glu Asp Pro
225   230   235   240

Ile Thr Gly Arg Gln Ser Val Leu Val Pro Tyr Glu Pro Pro Gln Val
        245   250   255

Gly Thr Glu Phe Thr Thr Val Leu Tyr Asn Phe Met Cys Asn Ser Ser
        260   265   270

Cys Val Gly Gly Met Asn Arg Arg Pro Ile Leu Ile Ile Val Thr Leu
        275   280   285

Glu Thr Arg Asp Gly Gln Val Leu Gly Arg Arg Cys Phe Glu Ala Arg
      290   295   300

Ile Cys Ala Cys Pro Gly Arg Asp Arg Lys Ala Asp Glu Asp Ser Ile
305   310   315   320

Arg Lys Gln Gln Val Ser Asp Ser Thr Lys Asn Gly Asp Gly Thr Lys
        325   330   335

Arg Pro Phe Arg Gln Asn Thr His Gly Ile Gln Met Thr Ser Ile Lys
        340   345·   350

Lys Arg Arg Ser Pro Asp Asp Glu Leu Leu Tyr Leu Pro Val Arg Gly
        355   360   365

Arg Glu Thr Tyr Glu Met Leu Leu Lys Ile Lys Glu Ser Leu Glu Leu
      370   375   380

Met Gln Tyr Leu Pro Gln His Thr Ile Glu Thr Tyr Arg Gln Gln Gln
385   390   395   400

Gln Gln Gln His Gln His Leu Leu Gln Lys Gln Thr Ser Ile Gln Ser
        405   410   415

```
Pro Ser Ser Tyr Gly Asn Ser Ser Pro Pro Leu Asn Lys Met Asn Ser
        420             425             430

Met Asn Lys Leu Pro Ser Val Ser Gln Leu Ile Asn Pro Gln Gln Arg
        435             440             445

Asn Ala Leu Thr Pro Thr Thr Ile Pro Asp Gly Met Gly Ala Asn Ile
    450             455             460

Pro Met Met Gly Thr His Met Pro Met Ala Gly Asp Met Asn Gly Leu
465             470             475             480

Ser Pro Thr Gln Ala Leu Pro Pro Pro Leu Ser Met Pro Ser Thr Ser
            485             490             495

His Cys Thr Pro Pro Pro Pro Tyr Pro Thr Asp Cys Ser Ile Val Arg
        500             505             510

Ile Trp Gln Val
        515
```

```
<210> 15
<211> 448
<212> PRT
<213> Homo sapiens

<400> 15
Met Ser Gln Ser Thr Gln Thr Asn Glu Phe Leu Ser Pro Glu Val Phe
  1           5               10              15

Gln His Ile Trp Asp Phe Leu Glu Gln Pro Ile Cys Ser Val Gln Pro
            20              25              30

Ile Asp Leu Asn Phe Val Asp Glu Pro Ser Glu Asp Gly Ala Thr Asn
        35              40              45

Lys Ile Glu Ile Ser Met Asp Cys Ile Arg Met Gln Asp Ser Asp Leu
    50              55              60

Ser Asp Pro Met Trp Pro Gln Tyr Thr Asn Leu Gly Leu Leu Asn Ser
65              70              75              80

Met Asp Gln Gln Ile Gln Asn Gly Ser Ser Ser Thr Ser Pro Tyr Asn
            85              90              95

Thr Asp His Ala Gln Asn Ser Val Thr Ala Pro Ser Pro Tyr Ala Gln
        100             105             110

Pro Ser Ser Thr Phe Asp Ala Leu Ser Pro Ser Pro Ala Ile Pro Ser
        115             120             125

Asn Thr Asp Tyr Pro Gly Pro His Ser Phe Asp Val Ser Phe Gln Gln
    130             135             140

Ser Ser Thr Ala Lys Ser Ala Thr Trp Thr Tyr Ser Thr Glu Leu Lys
145             150             155             160
```

Lys Leu Tyr Cys Gln Ile Ala Lys Thr Cys Pro Ile Gln Ile Lys Val
                165   170   175

Met Thr Pro Pro Pro Gln Gly Ala Val Ile Arg Ala Met Pro Val Tyr
            180   185   190

Lys Lys Ala Glu His Val Thr Glu Val Val Lys Arg Cys Pro Asn His
        195   200   205

Glu Leu Ser Arg Glu Phe Asn Glu Gly Gln Ile Ala Pro Pro Ser His
    210   215   220

Leu Ile Arg Val Glu Gly Asn Ser His Ala Gln Tyr Val Glu Asp Pro
225   230   235   240

Ile Thr Gly Arg Gln Ser Val Leu Val Pro Tyr Glu Pro Pro Gln Val
            245   250   255

Gly Thr Glu Phe Thr Thr Val Leu Tyr Asn Phe Met Cys Asn Ser Ser
            260   265   270

Cys Val Gly Gly Met Asn Arg Arg Pro Ile Leu Ile Ile Val Thr Leu
        275   280   285

Glu Thr Arg Asp Gly Gln Val Leu Gly Arg Arg Cys Phe Glu Ala Arg
    290   295   300

Ile Cys Ala Cys Pro Gly Arg Asp Arg Lys Ala Asp Glu Asp Ser Ile
305   310   315   320

Arg Lys Gln Gln Val Ser Asp Ser Thr Lys Asn Gly Asp Gly Thr Lys
            325   330   335

Arg Pro Phe Arg Gln Asn Thr His Gly Ile Gln Met Thr Ser Ile Lys
            340   345   350

Lys Arg Arg Ser Pro Asp Asp Glu Leu Leu Tyr Leu Pro Val Arg Gly
        355   360   365

Arg Glu Thr Tyr Glu Met Leu Leu Lys Ile Lys Glu Ser Leu Glu Leu
    370   375   380

Met Gln Tyr Leu Pro Gln His Thr Ile Glu Thr Tyr Arg Gln Gln Gln
385   390   395   400

Gln Gln Gln His Gln His Leu Leu Gln Lys His Leu Leu Ser Ala Cys
            405   410   415

Phe Arg Asn Glu Leu Val Glu Pro Arg Arg Glu Thr Pro Lys Gln Ser
            420   425   430

Asp Val Phe Phe Arg His Ser Lys Pro Pro Asn Arg Ser Val Tyr Pro
        435   440   445

<210> 16
<211> 586
<212> PRT
<213> Homo sapiens

<400> 16

```
Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
 1               5                  10                  15

Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
               20                  25                  30

Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
           35                  40                  45

Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
       50                  55                  60

Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
65                  70                  75                  80

His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
               85                  90                  95

Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
               100                 105                 110

Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
           115                 120                 125

Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
       130                 135                 140

Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145                 150                 155                 160

Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
               165                 170                 175

Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
           180                 185                 190

Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
       195                 200                 205

Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
   210                 215                 220

Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225                 230                 235                 240

Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
               245                 250                 255

Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
           260                 265                 270

Ser Thr Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr
       275                 280                 285

His Gly Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp
   290                 295                 300
```

```
Glu Leu Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu
305             310             315             320

Leu Lys Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His
                325             330             335

Thr Ile Glu Thr Tyr Arg Gln Gln Gln Gln Gln His Gln His Leu
            340             345             350

Leu Gln Lys Gln Thr Ser Ile Gln Ser Pro Ser Ser Tyr Gly Asn Ser
            355             360             365

Ser Pro Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val
    370             375             380

Ser Gln Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr
385             390             395             400

Ile Pro Asp Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met
            405             410             415

Pro Met Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro
            420             425             430

Pro Pro Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro
        435             440             445

Tyr Pro Thr Asp Cys Ser Ile Val Ser Phe Leu Ala Arg Leu Gly Cys
    450             455             460

Ser Ser Cys Leu Asp Tyr Phe Thr Thr Gln Gly Leu Thr Thr Ile Tyr
465             470             475             480

Gln Ile Glu His Tyr Ser Met Asp Asp Leu Ala Ser Leu Lys Ile Pro
            485             490             495

Glu Gln Phe Arg His Ala Ile Trp Lys Gly Ile Leu Asp His Arg Gln
        500             505             510

Leu His Glu Phe Ser Ser Pro Ser His Leu Leu Arg Thr Pro Ser Ser
    . 515             520             525

Ala Ser Thr Val Ser Val Gly Ser Ser Glu Thr Arg Gly Glu Arg Val
    530             535             540

Ile Asp Ala Val Arg Phe Thr Leu Arg Gln Thr Ile Ser Phe Pro Pro
545             550             555             560

Arg Asp Glu Trp Asn Asp Phe Asn Phe Asp Met Asp Ala Arg Arg Asn
            565             570             575

Lys Gln Gln Arg Ile Lys Glu Glu Gly Glu
            580             585
```

<210> 17
<211> 461
<212> PRT

<213> Homo sapiens

<400> 17

```
Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
 1               5                  10                  15

Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
            20                  25                  30

Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
        35                  40                  45

Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
        50                  55                  60

Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
65              70                  75                  80

His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
                85                  90                  95

Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
            100                 105                 110

Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
        115                 120                 125

Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
        130                 135                 140

Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145                 150                 155                 160

Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
                165                 170                 175

Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
            180                 185                 190

Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
        195                 200                 205

Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
        210                 215                 220

Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225                 230                 235                 240

Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
            245                 250                 255

Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
            260                 265                 270

Ser Thr Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr
        275                 280                 285
```

His Gly Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp
   290   295   300

Glu Leu Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu
305   310   · 315   320

Leu Lys Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His
            325   330   335

Thr Ile Glu Thr Tyr Arg Gln Gln Gln Gln Gln Gln His Gln His Leu
            340   345   350

Leu Gln Lys Gln Thr Ser Ile Gln Ser Pro Ser Ser Tyr Gly Asn Ser
            355   360   365

Ser Pro Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val
    370   375   380

Ser Gln Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr
· 385   390   395   400

Ile Pro Asp Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met
            405   410   415

Pro Met Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro
            420   425   430

Pro Pro Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro
            435   440   445

Tyr Pro Thr Asp Cys Ser Ile Val Arg Ile Trp Gln Val
    450   455   460

<210> 18
<211> 393
<212> PRT
<213> Homo sapiens

<400> 18
Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
  1   .   5   10   15

Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
            20   .   25   30

Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
        35   40   45

Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
    50   55   60

Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
65   70   75   80

His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
            85   90   95

Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
          100   105   110

Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
          115   120   125

Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
    130   135   140

Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145   150   155   160

Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
              165   170   175

Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
          180   185   190

Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
          195   200   205

Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
    210   215   220

Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225   230   235   240

Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
              245   250   255

Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
          260   265   270

Ser Thr Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr
          275   280   285

His Gly Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp
    290   295   300

Glu Leu Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu
305   310   315   320

Leu Lys Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His
              325   330   335

Thr Ile Glu Thr Tyr Arg Gln Gln Gln Gln Gln Gln His Gln His Leu
          340   345   350

Leu Gln Lys His Leu Leu Ser Ala Cys Phe Arg Asn Glu Leu Val Glu
          355   360   365

Pro Arg Arg Glu Thr Pro Lys Gln Ser Asp Val Phe Phe Arg His Ser
    370   375   380

Lys Pro Pro Asn Arg Ser Val Tyr Pro
385   390

<210> 19

<211> 680
<212> PRT
<213> murine

<400> 19

```
Met Asn Phe Glu Thr Ser Arg Cys Ala Thr Leu Gln Tyr Cys Pro Asp
 1               5                  10                  15

Pro Tyr Ile Gln Arg Phe Ile Glu Thr Pro Ala His Phe Ser Trp Lys
            20                  25                  30

Glu Ser Tyr Tyr Arg Ser Ala Met Ser Gln Ser Thr Gln Thr Ser Glu
        35                  40                  45

Phe Leu Ser Pro Glu Val Phe Gln His Ile Trp Asp Phe Leu Glu Gln
    50                  55                  60

Pro Ile Cys Ser Val Gln Pro Ile Glu Leu Asn Phe Val Asp Glu Pro
65                  70                  75                  80

Ser Glu Asn Gly Ala Thr Asn Lys Ile Glu Ile Ser Met Asp Cys Ile
                85                  90                  95

Arg Met Gln Asp Ser Asp Leu Ser Asp Pro Met Trp Pro Gln Tyr Thr
            100                 105                 110

Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn Gly Ser
            115                 120                 125

Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser Val Thr
    130                 135                 140

Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala Leu Ser
145                 150                 155                 160

Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro His Ser
                165                 170                 175

Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala Thr Trp
            180                 185                 190

Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala Lys Thr
        195                 200                 205

Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly Ala Val
    210                 215                 220

Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr Glu Val
225                 230                 235                 240

Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn Glu Gly
            245                 250                 255

Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn Ser His
            260                 265                 270

Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val Leu Val
        275                 280                 285
```

Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val Leu Tyr
    290   295   300

Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg Arg Pro
305   310   315   320

Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val Leu Gly
            325   330   335

Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg Asp Arg
            340   345   350

Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp Ser Ala
            355   360   365

Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr His Gly
            370   375   380

Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp Glu Leu
385   390   395   400

Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu Leu Lys
            405   410   415

Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His Thr Ile
            420   425   430

Glu Thr Tyr Arg Gln Gln Gln Gln Gln His Gln His Leu Leu Gln
            435   440   445

Lys Gln Thr Ser Met Gln Ser Gln Ser Ser Tyr Gly Asn Ser Ser Pro
            450   455   460

Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val Ser Gln
465   470   475   480

Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr Met Pro
            485   490   495

Glu Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met Pro Met
            500   505   510

Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro Pro Pro
            515   520   525

Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro Tyr Pro
    530   535   540

Thr Asp Cys Ser Ile Val Ser Phe Leu Ala Arg Leu Gly Cys Ser Ser
545   550   555   560

Cys Leu Asp Tyr Phe Thr Thr Gln Gly Leu Thr Thr Ile Tyr Gln Ile
            565   570   575

Glu His Tyr Ser Met Asp Asp Leu Ala Ser Leu Lys Ile Pro Glu Gln
            580   585   590

```
Phe Arg His Ala Ile Trp Lys Gly Ile Leu Asp His Arg Gln Leu His
        595             600             605

Asp Phe Ser Ser Pro Pro His Leu Leu Arg Thr Pro Ser Gly Ala Ser
    610             615             620

Thr Val Ser Val Gly Ser Ser Glu Thr Arg Gly Glu Arg Val Ile Asp
625             630             635             640

Ala Val Arg Phe Thr Leu Arg Gln Thr Ile Ser Phe Pro Pro Arg Asp
            645             650             655

Glu Trp Asn Asp Phe Asn Phe Asp Met Asp Ser Arg Arg Asn Lys Gln
            660             665             670

Gln Arg Ile Lys Glu Glu Gly Glu
        675             680
```

<210> 20
<211> 555
<212> PRT
<213> murine

<400> 20

```
Met Asn Phe Glu Thr Ser Arg Cys Ala Thr Leu Gln Tyr Cys Pro Asp
  1             5             10             15

Pro Tyr Ile Gln Arg Phe Ile Glu Thr Pro Ala His Phe Ser Trp Lys
            20             25             30

Glu Ser Tyr Tyr Arg Ser Ala Met Ser Gln Ser Thr Gln Thr Ser Glu
        35             40             45

Phe Leu Ser Pro Glu Val Phe Gln His Ile Trp Asp Phe Leu Glu Gln
        50             55             60

Pro Ile Cys Ser Val Gln Pro Ile Glu Leu Asn Phe Val Asp Glu Pro
 65             70             75             80

Ser Glu Asn Gly Ala Thr Asn Lys Ile Glu Ile Ser Met Asp Cys Ile
            85             90             95

Arg Met Gln Asp Ser Asp Leu Ser Asp Pro Met Trp Pro Gln Tyr Thr
            100             105             110

Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn Gly Ser
            115             120             125

Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser Val Thr
    130             135             140

Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala Leu Ser
145             150             155             160

Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro His Ser
            165             170             175
```

Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala Thr Trp
       180   185   190

Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala Lys Thr
       195   200   205

Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Gln Gly Ala Val
  210   215   220

Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr Glu Val
225   230   235   240

Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn Glu Gly
       245   250   255

Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn Ser His
       260   265   270

Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val Leu Val
       275   280   285

Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val Leu Tyr
       290   295   300

Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg Arg Pro
305   310   315   320

Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val Leu Gly
       325   330   335

Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg Asp Arg
       340   345   350

Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp Ser Ala
       355   360   365

Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr His Gly
       370   375   380

Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp Glu Leu
385   390   395   400

Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu Leu Lys
       405   410   415

Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His Thr Ile
       420   425   430

Glu Thr Tyr Arg Gln Gln Gln Gln Gln His Gln His Leu Leu Gln
       435   440   445

Lys Gln Thr Ser Met Gln Ser Gln Ser Ser Tyr Gly Asn Ser Ser Pro
       450   455   460

Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val Ser Gln
465   470   475   480

Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr Met Pro
                485   490   495

Glu Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met Pro Met
            500   505   510

Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro Pro Pro
            515   520   525

Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro Tyr Pro
        530   535   540

Thr Asp Cys Ser Ile Val Arg Ile Trp Gln Val
545   550   555

<210> 21
<211> 483
<212> PRT
<213> murine

<400> 21
Met Asn Phe Glu Thr Ser Arg Cys Ala Thr Leu Gln Tyr Cys Pro Asp
  1   5   10   15

Pro Tyr Ile Gln Arg Phe Ile Glu Thr Pro Ala His Phe Ser Trp Lys
                20   25   30

Glu Ser Tyr Tyr Arg Ser Ala Met Ser Gln Ser Thr Gln Thr Ser Glu
            35   40   45

Phe Leu Ser Pro Glu Val Phe Gln His Ile Trp Asp Phe Leu Glu Gln
        50   55   60

Pro Ile Cys Ser Val Gln Pro Ile Glu Leu Asn Phe Val Asp Glu Pro
65   70   75   80

Ser Glu Asn Gly Ala Thr Asn Lys Ile Glu Ile Ser Met Asp Cys Ile
                85   90   95

Arg Met Gln Asp Ser Asp Leu Ser Asp Pro Met Trp Pro Gln Tyr Thr
            100   105   110

Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn Gly Ser
            115   120   125

Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser Val Thr
        130   135   140

Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala Leu Ser
145   150   155   160

Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro His Ser
                165   170   175

Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala Thr Trp
                180   185   190

Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala Lys Thr
        195   200   205

Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Gln Gly Ala Val
    210   215   220

Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr Glu Val
225   230   235   240

Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn Glu Gly
            245   250   255

Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn Ser His
            260   265   270

Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val Leu Val
        275   280   285

Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val Leu Tyr
    290   295   300

Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg Arg Pro
305   310   315   320

Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val Leu Gly
            325   330   335

Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg Asp Arg
            340   345   350

Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp Ser Ala
        355   360   365

Lys Asn Gly Asp Ala Phe Arg Gln Asn Thr His Gly Ile Gln Met Thr
    370   375   380

Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp Glu Leu Leu Tyr Leu Pro
385   390   395   400

Val Arg Gly Arg Glu Thr Tyr Glu Met Leu Leu Lys Ile Lys Glu Ser
            405   410   415

Leu Glu Leu Met Gln Tyr Leu Pro Gln His Thr Ile Glu Thr Tyr Arg
            420   425   430

Gln Gln Gln Gln Gln Gln His Gln His Leu Leu Gln Lys His Leu Leu
        435   440   445

Ser Ala Cys Phe Arg Asn Glu Leu Val Glu Pro Arg Gly Glu Ala Pro
    450   455   460

Thr Gln Ser Asp Val Phe Phe Arg His Ser Asn Pro Pro Asn His Ser
465   470   475   480

Val Tyr Pro

<210> 22

<211> 586
<212> PRT
<213> murine

<400> 22
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Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
 1               5                  10                  15

Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
                20                  25                  30

Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
            35                  40                  45

Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
        50                  55                  60

Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
65                  70                  75                  80

His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
                85                  90                  95

Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
                100                 105                 110

Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
            115                 120                 125

Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
        130                 135                 140

Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145                 150                 155                 160

Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
                165                 170                 175

Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
            180                 185                 190

Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
            195                 200                 205

Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
    210                 215                 220

Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225                 230                 235                 240

Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
                245                 250                 255

Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
            260                 265                 270

Ser Ala Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr
            275                 280                 285
```

```
His Gly Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp
    290             295             300

Glu Leu Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu
305                 310             315                     320

Leu Lys Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His
                325             330             335

Thr Ile Glu Thr Tyr Arg Gln Gln Gln Gln Gln Gln His Gln His Leu
                340             345             350

Leu Gln Lys Gln Thr Ser Met Gln Ser Gln Ser Ser Tyr Gly Asn Ser
        355             360             365

Ser Pro Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val
    370             375             380

Ser Gln Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr
385                 390             395                     400

Met Pro Glu Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met
            405             410             415

Pro Met Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro
            420             425             430

Pro Pro Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro
        435             440             445

Tyr Pro Thr Asp Cys Ser Ile Val Ser Phe Leu Ala Arg Leu Gly Cys
    450             455             460

Ser Ser Cys Leu Asp Tyr Phe Thr Thr Gln Gly Leu Thr Thr Ile Tyr
465             470             475                     480

Gln Ile Glu His Tyr Ser Met Asp Asp Leu Ala Ser Leu Lys Ile Pro
                485             490             495

Glu Gln Phe Arg His Ala Ile Trp Lys Gly Ile Leu Asp His Arg Gln
            500             505             510

Leu His Asp Phe Ser Ser Pro Pro His Leu Leu Arg Thr Pro Ser Gly
        515             520             525

Ala Ser Thr Val Ser Val Gly Ser Ser Glu Thr Arg Gly Glu Arg Val
    530             535             540

Ile Asp Ala Val Arg Phe Thr Leu Arg Gln Thr Ile Ser Phe Pro Pro
545             550             555                     560

Arg Asp Glu Trp Asn Asp Phe Asn Phe Asp Met Asp Ser Arg Arg Asn
                565             570             575

Lys Gln Gln Arg Ile Lys Glu Glu Gly Glu
        580             585
```

<210> 23
<211> 461
<212> PRT
<213> murine

<400> 23

```
Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
 1               5                  10                  15

Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
                20                  25                  30

Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
            35                  40                  45

Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
        50                  55                  60

Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
65                  70                  75                  80

His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
                85                  90                  95

Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
            100                 105                 110

Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
        115                 120                 125

Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
        130                 135                 140

Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145                 150                 155                 160

Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
                165                 170                 175

Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
            180                 185                 190

Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
            195                 200                 205

Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
        210                 215                 220

Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225                 230                 235                 240

Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
                245                 250                 255

Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
            260                 265                 270
```

Ser Ala Lys Asn Gly Asp Gly Thr Lys Arg Pro Phe Arg Gln Asn Thr
    275   280   285

His Gly Ile Gln Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp
    290   295   300

Glu Leu Leu Tyr Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu
305   310   315   320

Leu Lys Ile Lys Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His
        325   330   335

Thr Ile Glu Thr Tyr Arg Gln Gln Gln Gln Gln His Gln His Leu
    340   345   350

Leu Gln Lys Gln Thr Ser Met Gln Ser Gln Ser Ser Tyr Gly Asn Ser
    355   360   365

Ser Pro Pro Leu Asn Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val
    370   375   380

Ser Gln Leu Ile Asn Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr
385   390   395   400

Met Pro Glu Gly Met Gly Ala Asn Ile Pro Met Met Gly Thr His Met
        405   410   415

Pro Met Ala Gly Asp Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro
        420   425   430

Pro Pro Leu Ser Met Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro
        435   440   445

Tyr Pro Thr Asp Cys Ser Ile Val Arg Ile Trp Gln Val
    450   455   460

<210> 24
<211> 389
<212> PRT
<213> murine

<400> 24
Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
  1   5   10   15

Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met Asp Gln Gln Ile Gln Asn
        20   25   30

Gly Ser Ser Ser Thr Ser Pro Tyr Asn Thr Asp His Ala Gln Asn Ser
        35   40   45

Val Thr Ala Pro Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Ala
      50   55   60

Leu Ser Pro Ser Pro Ala Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro
  65   70   75   80

His Ser Phe Asp Val Ser Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala
               85   90   95

Thr Trp Thr Tyr Ser Thr Glu Leu Lys Lys Leu Tyr Cys Gln Ile Ala
      100   105   110

Lys Thr Cys Pro Ile Gln Ile Lys Val Met Thr Pro Pro Pro Gln Gly
      115   120   125

Ala Val Ile Arg Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr
   130   135   140

Glu Val Val Lys Arg Cys Pro Asn His Glu Leu Ser Arg Glu Phe Asn
145   150   155   160

Glu Gly Gln Ile Ala Pro Pro Ser His Leu Ile Arg Val Glu Gly Asn
         165   170   175

Ser His Ala Gln Tyr Val Glu Asp Pro Ile Thr Gly Arg Gln Ser Val
         180   185   190

Leu Val Pro Tyr Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Val
      195   200   205

Leu Tyr Asn Phe Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg
   210   215   220

Arg Pro Ile Leu Ile Ile Val Thr Leu Glu Thr Arg Asp Gly Gln Val
225   230   235   240

Leu Gly Arg Arg Cys Phe Glu Ala Arg Ile Cys Ala Cys Pro Gly Arg
         245   250   255

Asp Arg Lys Ala Asp Glu Asp Ser Ile Arg Lys Gln Gln Val Ser Asp
         260   265   270

Ser Ala Lys Asn Gly Asp Ala Phe Arg Gln Asn Thr His Gly Ile Gln
        275   280   285

Met Thr Ser Ile Lys Lys Arg Arg Ser Pro Asp Asp Glu Leu Leu Tyr
   290   295   300

Leu Pro Val Arg Gly Arg Glu Thr Tyr Glu Met Leu Leu Lys Ile Lys
305   310   315   320

Glu Ser Leu Glu Leu Met Gln Tyr Leu Pro Gln His Thr Ile Glu Thr
         325   330   335

Tyr Arg Gln Gln Gln Gln Gln His Gln His Leu Leu Gln Lys His
         340   345   350

Leu Leu Ser Ala Cys Phe Arg Asn Glu Leu Val Glu Pro Arg Gly Glu
        355   360   365

Ala Pro Thr Gln Ser Asp Val Phe Phe Arg His Ser Asn Pro Pro Asn
   370   375   380

His Ser Val Tyr Pro
385

<210> 25
<211> 393
<212> PRT
<213> Homo sapiens

<400> 25
Met Glu Glu Pro Gln Ser Asp Pro Ser Val Glu Pro Pro Leu Ser Gln
1   5   10   15

Glu Thr Phe Ser Asp Leu Trp Lys Leu Leu Pro Glu Asn Asn Val Leu
            20   25   30

Ser Pro Leu Pro Ser Gln Ala Met Asp Asp Leu Met Leu Ser Pro Asp
        35   40   45

Asp Ile Glu Gln Trp Phe Thr Glu Asp Pro Gly Pro Asp Glu Ala Pro
    50   55   60

Arg Met Pro Glu Ala Ala Pro Pro Val Ala Pro Ala Pro Ala Ala Pro
65   70   75   80

Thr Pro Ala Ala Pro Ala Pro Ala Pro Ser Trp Pro Leu Ser Ser Ser
            85   90   95

Val Pro Ser Gln Lys Thr Tyr Gln Gly Ser Tyr Gly Phe Arg Leu Gly
        100   105   110

Phe Leu His Ser Gly Thr Ala Lys Ser Val Thr Cys Thr Tyr Ser Pro
        115   120   125

Ala Leu Asn Lys Met Phe Cys Gln Leu Ala Lys Thr Cys Pro Val Gln
    130   135   140

Leu Trp Val Asp Ser Thr Pro Pro Pro Gly Thr Arg Val Arg Ala Met
145   150   155   160

Ala Ile Tyr Lys Gln Ser Gln His Met Thr Glu Val Val Arg Arg Cys
            165   170   175

Pro His His Glu Arg Cys Ser Asp Ser Asp Gly Leu Ala Pro Pro Gln
        180   185   190

His Leu Ile Arg Val Glu Gly Asn Leu Arg Val Glu Tyr Leu Asp Asp
        195   200   205

Arg Asn Thr Phe Arg His Ser Val Val Val Pro Tyr Glu Pro Pro Glu
    210   215   220

Val Gly Ser Asp Cys Thr Thr Ile His Tyr Asn Tyr Met Cys Asn Ser
225   230   235   240

Ser Cys Met Gly Gly Met Asn Arg Arg Pro Ile Leu Thr Ile Ile Thr
            245   250   255

```
Leu Glu Asp Ser Ser Gly Asn Leu Leu Gly Arg Asn Ser Phe Glu Val
        260             265             270

His Val Cys Ala Cys Pro Gly Arg Asp Arg Arg Thr Glu Glu Glu Asn
        275             280             285

Leu Arg Lys Lys Gly Glu Pro His His Glu Leu Pro Pro Gly Ser Thr
    290              .      295             300

Lys Arg Ala Leu Pro Asn Asn Thr Ser Ser Ser Pro Gln Pro Lys Lys
305             310              .      315             320

Lys Pro Leu Asp Gly Glu Tyr Phe Thr Leu Gln Ile Arg Gly Arg Glu
                325              .      330             335

Arg Phe Glu Met Phe Arg Glu Leu Asn Glu Ala Leu Glu Leu Lys Asp
            340             345             350

Ala Gln Ala Gly Lys Glu Pro Gly Gly Ser Arg Ala His Ser Ser His
        355             360             365

Leu Lys Ser Lys Lys Gly Gln Ser Thr Ser Arg His Lys Lys Leu Met
    370             375             380

Phe Lys Thr Glu Gly Pro Asp Ser Asp
385             390
```

```
<210> 26
<211> 499
<212> PRT
<213> Homo sapiens

<400> 26
Met Ala Gln Ser Thr Ala Thr Ser Pro Asp Gly Gly Thr Thr Phe Glu
    1           5               10              15

His Leu Trp Ser Ser Leu Glu Pro Asp Ser Thr Tyr Phe Asp Leu Pro
            20              25              30

Gln Ser Ser Arg Gly Asn Asn Glu Val Val Gly Gly Thr Asp Ser Ser
        35              40              45

Met Asp Val Phe His Leu Glu Gly Met Thr Thr Ser Val Met Ala Gln
        50              55              60

Phe Asn Leu Leu Ser Ser Thr Met Asp Gln Met Ser Ser Arg Ala Ala
65              70              75              80

Ser Ala Ser Pro Tyr Thr Pro Glu His Ala Ala Ser Val Pro Thr His
                85              90              95

Ser Pro Tyr Ala Gln Pro Ser Ser Thr Phe Asp Thr Met Ser Pro Ala
            100             105             110

Pro Val Ile Pro Ser Asn Thr Asp Tyr Pro Gly Pro His His Phe Glu
        115             120             125
```

Val Thr Phe Gln Gln Ser Ser Thr Ala Lys Ser Ala Thr Trp Thr Tyr
    130   135   140

Ser Pro Leu Leu Lys Lys Leu Tyr Cys Gln Ile Ala Lys Thr Cys Pro
145   150   155   160

Ile Gln Ile Lys Val Ser Thr Pro Pro Pro Gly Thr Ala Ile Arg
            165   170   175

Ala Met Pro Val Tyr Lys Lys Ala Glu His Val Thr Asp Val Val Lys
        180   185   190

Arg Cys Pro Asn His Glu Leu Gly Arg Asp Phe Asn Glu Gly Gln Ser
        195   200   205

Ala Pro Ala Ser His Leu Ile Arg Val Glu Gly Asn Asn Leu Ser Gln
    210   215   220

Tyr Val Asp Asp Pro Val Thr Gly Arg Gln Ser Val Val Val Pro Tyr
225   230   235   240

Glu Pro Pro Gln Val Gly Thr Glu Phe Thr Thr Ile Leu Tyr Asn Phe
            245   250   255

Met Cys Asn Ser Ser Cys Val Gly Gly Met Asn Arg Arg Pro Ile Leu
        260   265   270

Ile Ile Ile Thr Leu Glu Met Arg Asp Gly Gln Val Leu Gly Arg Arg
        275   280   285

Ser Phe Glu Gly Arg Ile Cys Ala Cys Pro Gly Arg Asp Arg Lys Ala
    290   295   300

Asp Glu Asp His Tyr Arg Glu Gln Gln Ala Leu Asn Glu Ser Ser Ala
305   310   315   320

Lys Asn Gly Ala Ala Ser Lys Arg Ala Phe Lys Gln Ser Pro Pro Ala
            325   330   335

Val Pro Ala Leu Gly Ala Gly Val Lys Lys Arg Arg His Gly Asp Glu
            340   345   350

Asp Thr Tyr Tyr Leu Gln Val Arg Gly Arg Glu Asn Phe Glu Ile Leu
        355   360   365

Met Lys Leu Lys Glu Ser Leu Glu Leu Met Glu Leu Val Pro Gln Pro
        370   375   380

Leu Val Asp Ser Tyr Arg Gln Gln Gln Leu Leu Gln Arg Pro Ser
385   390   395   400

His Leu Gln Pro Pro Ser Tyr Gly Pro Val Leu Ser Pro Met Asn Lys
            405   410   415

Val His Gly Gly Met Asn Lys Leu Pro Ser Val Asn Gln Leu Val Gly
        420   425   430

```
Gln Pro Pro Pro His Ser Ser Ala Ala Thr Pro Asn Leu Gly Pro Val
        435              440          445

Gly Pro Gly Met Leu Asn Asn His Gly His Ala Val Pro Ala Asn Gly
        450              455          460

Glu Met Ser Ser Ser His Ser Ala Gln Ser Met Val Ser Gly Ser His
465              470              475              480

Cys Thr Pro Pro Pro Pro Tyr His Ala Asp Pro Ser Leu Val Arg Thr
            485              490              495

Trp Gly Pro
```

<210> 27
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<220>
<221> modified_base
<222> (15)
<223> inosine

<400> 27
ggcctcgagt acaantwcat gtgtaayag   29

<210> 28
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 28
ggcatcgatt ctcttccagg gcaagcaca   29

<210> 29
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 29
ggcatcgatg aactcacggc tcagctc   27

<210> 30
<211> 43
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 30
tttagtgagg gttaataagc ggccgcgtcg tgactgggag cgc   43

<210> 31
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 31
gccctggagg cggccgctta ttaaccctca c   31

<210> 32
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 32
ggcatcgatg tagacaggca tggcacg   27

<210> 33
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 33
gggctcgagc tgaagaagct gtactgc   27

<210> 34
<211> 27
<212> DNA
<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 34
gggatcgatc tccgtttctt gatggaa                                          27


<210> 35
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 35
cctgcctgga cttgcctgg                                                   19


<210> 36
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer
<400> 36
ccaggcaagt ccaggcagg                                                   19


<210> 37
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 37
gaacatgtcc caacatgttg                                                  20


<210> 38
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 38
caacatgttg ggacatgttc                                                  20
```

```
<210> 39
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 39
ccttaatgga ctttaatgg                                             19


<210> 40
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 40
ccattaaagt ccattaagg                                             19


<210> 41
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 41
atgtcccaga gccacacag                                             19


<210> 42
<211> 18
<212> .DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 42
agctcatggt tggggcac                                              18


<210> 43
<211> 18
<212> DNA
<213> Artificial Sequence
```

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 43
cagactcaat ttagtgag   18

<210> 44
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: synthetic
      primer

<400> 44
agctcatggt tggggcac   18

<210> 45
<211> 120
<212> PRT
<213> murine

<400> 45
Met Asn Phe Glu Thr Ser Arg Cys Ala Thr Leu Gln Tyr Cys Pro Asp
  1   5   10   15

Pro Tyr Ile Gln Arg Phe Ile Glu Thr Pro Ala His Phe Ser Trp Lys
                20   25   30

Glu Ser Tyr Tyr Arg Ser Ala Met Ser Gln Ser Thr Gln Thr Ser Glu
            35   40   45

Phe Leu Ser Pro Glu Val Phe Gln His Ile Trp Asp Phe Leu Glu Gln
        50   55   60

Pro Ile Cys Ser Val Gln Pro Ile Glu Leu Asn Phe Val Asp Glu Pro
 65   70   75   80

Ser Glu Asn Gly Ala Thr Asn Lys Ile Glu Ile Ser Met Asp Cys Ile
                85   90   95

Arg Met Gln Asp Ser Asp Leu Ser Asp Pro Met Trp Pro Gln Tyr Thr
            100   105   110

Asn Leu Gly Leu Leu Asn Ser Met
            115   120

<210> 46
<211> 81
<212> PRT
<213> Homo sapiens

```
<400> 46
Met Ser Gln Ser Thr Gln Thr Asn Glu Phe Leu Ser Pro Glu Val Phe
1               5                   10                  15

Gln His Ile Trp Asp Phe Leu Glu Gln Pro Ile Cys Ser Val Gln Pro
                20                  25                  30

Ile Asp Leu Asn Phe Val Asp Glu Pro Ser Glu Asp Gly Ala Thr Asn
                35                  40                  45

Lys Ile Glu Ile Ser Met Asp Cys Ile Arg Met Gln Asp Ser Asp Leu
        50                  55                  60

Ser Asp Pro Met Trp Pro Gln Tyr Thr Asn Leu Gly Leu Leu Asn Ser
65                  70                  75                      80

Met
```

```
<210> 47
<211> 26
<212> PRT
<213> Homo sapiens
```

```
<400> 47
Met Leu Tyr Leu Glu Asn Asn Ala Gln Thr Gln Phe Ser Glu Pro Gln
1               5                   10                  15

Tyr Thr Asn Leu Gly Leu Leu Asn Ser Met
                20                  25
```

```
<210> 48
<211> 245
<212> PRT
<213> Homo sapiens
```

```
<400> 48
Arg Gln Gln Gln Gln Gln Gln His Gln His Leu Leu Gln Lys Gln Thr
1               5                   10                  15

Ser Ile Gln Ser Pro Ser Ser Tyr Gly Asn Ser Ser Pro Pro Leu Asn
                20                  25                  30

Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val Ser Gln Leu Ile Asn
        35                  40                  45

Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr Ile Pro Asp Gly Met
        50                  55                  60

Gly Ala Asn Ile Pro Met Met Gly Thr His Met Pro Met Ala Gly Asp
65                  70                  75                      80

Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro Pro Pro Leu Ser Met
                85                  90                  95

Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro Tyr Pro Thr Asp Cys
                100                 105                 110
```

```
Ser Ile Val Ser Phe Leu Ala Arg Leu Gly Cys Ser Ser Cys Leu Asp
    115                 120                 125

Tyr Phe Thr Thr Gln Gly Leu Thr Thr Ile Tyr Gln Ile Glu His Tyr
    130                 135                 140

Ser Met Asp Asp Leu Ala Ser Leu Lys Ile Pro Glu Gln Phe Arg His
145                 150                 155                 160

Ala Ile Trp Lys Gly Ile Leu Asp His Arg Gln Leu His Glu Phe Ser
            165                 170                 175

Ser Pro Ser His Leu Leu Arg Thr Pro Ser Ser Ala Ser Thr Val Ser
            180                 185                 190

Val Gly Ser Ser Glu Thr Arg Gly Glu Arg Val Ile Asp Ala Val Arg
            195                 200                 205

Phe Thr Leu Arg Gln Thr Ile Ser Phe Pro Pro Arg Asp Glu Trp Asn
    210                 215                 220

Asp Phe Asn Phe Asp Met Asp Ala Arg Arg Asn Lys Gln Gln Arg Ile
225                 230                 235                 240

Lys Glu Glu Gly Glu
                245


<210> 49
<211> 120
<212> PRT
<213> Homo sapiens

<400> 49
Arg Gln Gln Gln Gln Gln Gln His Gln His Leu Leu Gln Lys Gln Thr
    1               5               10                  15

Ser Ile Gln Ser Pro Ser Ser Tyr Gly Asn Ser Ser Pro Pro Leu Asn
            20                  25                  30

Lys Met Asn Ser Met Asn Lys Leu Pro Ser Val Ser Gln Leu Ile Asn
        35                  40                  45

Pro Gln Gln Arg Asn Ala Leu Thr Pro Thr Thr Ile Pro Asp Gly Met
    50                  55                  60

Gly Ala Asn Ile Pro Met Met Gly Thr His Met Pro Met Ala Gly Asp
65                  70                  75                  80

Met Asn Gly Leu Ser Pro Thr Gln Ala Leu Pro Pro Pro Leu Ser Met
            85                  90                  95

Pro Ser Thr Ser His Cys Thr Pro Pro Pro Pro Tyr Pro Thr Asp Cys
            100                 105                 110

Ser Ile Val Arg Ile Trp Gln Val
    115                 120
```

<210> 50
<211> 52
<212> PRT
<213> Homo sapiens

<400> 50
Arg Gln Gln Gln Gln Gln Gln His Gln His Leu Leu Gln Lys His Leu
1   5   10   15

Leu Ser Ala Cys Phe Arg Asn Glu Leu Val Glu Pro Arg Arg Glu Thr
            20   25   30

Pro Lys Gln Ser Asp Val Phe Phe Arg His Ser Lys Pro Pro Asn Arg
        35   40   45

Ser Val Tyr Pro
    50